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CONTENTS

Vesico-Ureteral Reflux: Diagnosis and Management ..... V. A. Politano

Surgery for Deafness ..... J. B. Farrior

Cardiac Resuscitation ..... W. H. Lee and J. M. Stallworth

Greenville County Medical Society IV ..... J. D. Guess

MEDICAL COLLEGE CLINICS

Electrocardiogram—Retained Juvenile Pattern ..... Dale Groom

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VESICO-URETERAL REFLUX IN CHILDREN DIAGNOSIS AND MANAGEMENT

VICTOR A. POLITANO, M. D.

Vesico-ureteral reflux is the regurgitation of urine, once it has entered the bladder, into the ureter. For many years there has been intense speculation with conflicting opinions as to whether reflux occurs in a normal person. Text books and current literature express divergent thoughts on this problem. A critical review of the literature would indicate that vesico-ureteral reflux does not occur normally, and when it is observed, is usually associated with some other urologic disease. A question that immediately comes to mind regarding this subject is whether it occurs frequently enough to be considered a major topic for discussion.

Occurrence

Campbell[1] surveyed 722 cystograms done in infants and children and was unable to demonstrate reflux in the absence of some other associated urologic problem. Gibson[2] found reflux present in only 2 of 42 children whose urinary tracts were apparently normal. Jones and Headstream[3] observed reflux in only 1 of 100 normal children ranging from ages 14 days to 14 years. The one child with reflux was found to be carrying 180 ml. residual urine and was treated by transurethral resection of the vesical neck. Bunge[4] examined a group of children ranging in ages from 9 to 15 months and was unable to demonstrate this condition. In our own rather large study of normal children we have not demonstrated reflux in a single case to date. The absence of reflux in normal children is impressive when compared to the frequency with which it occurs with demonstrable or co-existing uropathy. Bumpas[5] observed reflux in 8.6% of cystograms showing other urologic problems. Twelve per cent of cystograms reviewed by Campbell demonstrated reflux in children with co-existing urologic diseases. St. Martin and others[6] noted reflux in 13.5% of children investigated because of urologic symptoms. Roughly then, 10 to 12% of children presenting with urologic complaints will demonstrate vesicoureteral reflux.

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Diagnosis

The frequency with which this condition is diagnosed is dependent to a large extent on the index of suspicion by the examining physician and the thoroughness in which his examination is performed. The diagnosis is usually simple to make and is demonstrated by cystography. A small catheter is introduced through the urethra into the bladder, and from 60-100 ml. of sodium iodide or a similar contrast substance is injected into the bladder. The catheter is removed, and the child is instructed not to void for 20 or 30 minutes. An x-ray film is taken at the end of this time. If reflux is not demonstrated in the delayed cystogram, an exposure is taken while the child is voiding. In our experience, voiding cystourethrograms have been more informative than delayed cystograms alone. In the very young child it may be difficult to get a good voiding film. The same result can be obtained if the child can be made to cry. Every child with re-

peated urinary tract infections, residual urine, unexplained fevers, vague abdominal complaints or flank pain, should be studied by cystography. There is a tendency to eliminate this valuable diagnostic procedure when intravenous pyelograms have been reported as normal. It must be remembered that approximately 70% of patients that demonstrate vesico-ureteral reflux, even with advanced changes, will show essentially normal intravenous pyelograms.

Management

Several factors may contribute or be responsible for the occurrence of vesico-ureteral reflux. The management of this problem will vary with the factors responsible. In most instances, infection is present and is usually the presenting symptom. Infection may produce fibrosis and fixation of the ureter with loss of elasticity of the intra-mural ureter, thus destroying the valve-like action of this segment of ureter. Congenital anomalies such as ectopic ureteral orifices, maldevelopment of the trigone, or decrease in the length or obliquity of the intra-mural ureter may be responsible. Reflux is often demonstrated with neurogenic disorders of the bladder. Obstructions to the vesical outlet, such as contractures, median bars, posterior urethral valves, or strictures of the urethra are an important contributing causes. Reflux may result from trauma to the intra-mural ureter incident to surgery of ureteroceles, meatotomies, or transurethral resections. Once the diagnosis has been established, every effort should be made to eliminate the process, which if allowed to continue, will inevitably destroy the kidney. Infections, when present, should be eradicated. This may be difficult or even impossible in the presence of large dilated tortuous ureters or with residual urine. Neurogenic disorders should be corrected with appropriate drug therapy or surgical modification of the neurologic deficit when possible. Residual urine secondary to vesical neck obstruction must be eliminated. This may be accomplished by catheter drainage, multiple voidings, urethral dilatations, or transurethral or open resection of the vesical neck or other obstructing lesion. Every conservative effort to eliminate reflux should be attempted first. If the more conservative measures have failed to resolve the problem, a direct attack on the intra-mural ureter may be necessary. The creation of a submucosal tunnel, described three years ago, has been most successful in correcting vesico-ureteral reflux without producing obstruction to the efflux of urine.[7]

Case 1

The patient was a 4 year old white girl admitted with a five-month history of intermittent fever with temperature elevations to 105° F. occurring every three to four days. She had mild irritative symptoms

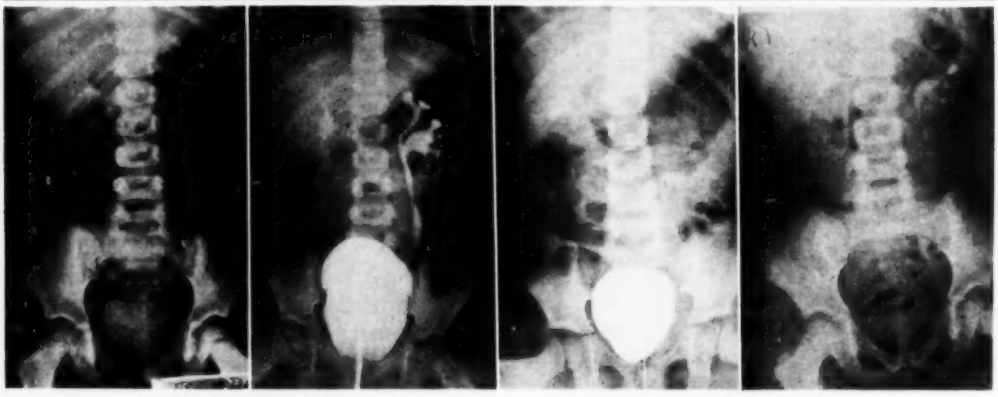

Fig. 1A Case 1.
Preoperative intravenous pyelograms showing blunting of the calyces on the left with a bifid kidney and ureter.

Fig. 1B
Preoperative cystogram-reflux, left. Contrast media in the right pelvis represents continued excretion from intravenous pyelograms.

Fig. 1C
Postoperative cystogram demonstrates absence of reflux.

Fig. 1D
Postoperative intravenous pyelogram shows essentially same calyceal pattern as preoperative films.

on voiding, consisting of burning and frequency. Her fever was controlled with Gantrisin, (acetyl sulfisoxazole) which she had been taking for six weeks prior to admission.

On physical examination her temperature was 100.2° F., pulse 90, respirations 25, and blood pressure 98 mm/Hg. systolic, 76 diastolic. She was a small but otherwise normally developed child.

Laboratory studies showed a hemoglobin of 12.6 Gm. with a white blood count of 11,000 cu/mm. Her urinalysis contained 20 to 25 white blood cells and 10 red blood cells per high powered field. The nonprotein nitrogen was 34 mg. per 100 ml.

Intravenous pyelograms (fig. 1a) showed slight hydronephrosis of a double left kidney with blunting of the calyces. There was partial reduplication of the left ureter. A cystogram (fig. 1b) demonstrated immediate ureteral reflux on the left.

On cystoscopic examination the left ureteral orifice was found to be lateral to the trigone and sitting high on the left lateral portion of the bladder wall. The right ureteral orifice was in its normal anatomic position. The bladder outlet was considered normal.

The diagnosis was ectopic ureteral insertion with ureteral reflux and pyelonephritis on the left side.

Treatment consisted of reimplantation of the left ureter by creation of a submucosal tunnel. This successfully corrected the vesico-ureteral reflux (fig. 1c). Postoperative intravenous pyelograms showed good excretion from the left kidney without evidence of obstruction (fig. 1d). The child has remained asymptomatic for a period of 40 months. Microscopic examination of urine was negative, and cultures have been sterile.

Case 2

A 12 year old white boy was referred because of bilateral hydroureters and hydronephrosis. There was a two-year history of enuresis. Eight months prior to his first admission to another hospital, fever, chills, nausea, and vomiting developed. There was right flank pain, which was often relieved by voiding. His studies at that time revealed a bilateral hydronephrosis. A diagnosis of vesical neck obstruction was made, and a partial cystectomy and Bradford-Young procedure were performed. He was kept on suprapubic catheter drainage over a long period to allow the upper urinary tract to drain more adequately. On removal of the suprapubic catheter, his symptoms recurred. The hydronephrosis became progressive. On admission to this hospital he was found to carry residual urine of between 150 to 200 ml. A diagnosis of posterior urethral valves was made, and these were resected. This procedure eliminated the residual urine and enuresis. Because of the marked hydronephrosis and hydroureters, he was kept on catheter drainage for an additional five months.

On physical examination his temperature was 98° F., pulse 100, respirations 25, blood pressure, 120 systolic, 80 diastolic. He was a well nourished boy, but small for his age. There was a well healed lower abdominal scar.

Laboratory studies showed a hemoglobin of 15.6 Gm. and a white blood count of 11,800 cu/mm. The urine was loaded with white blood cells and an occasional red blood cell. Urine cultures grew *Escherichia coli* and *Proteus vulgaris*. Nonprotein nitrogen was 24 mg. per 100 ml.

Intravenous pyelogram (fig. 2a) demonstrated ad-

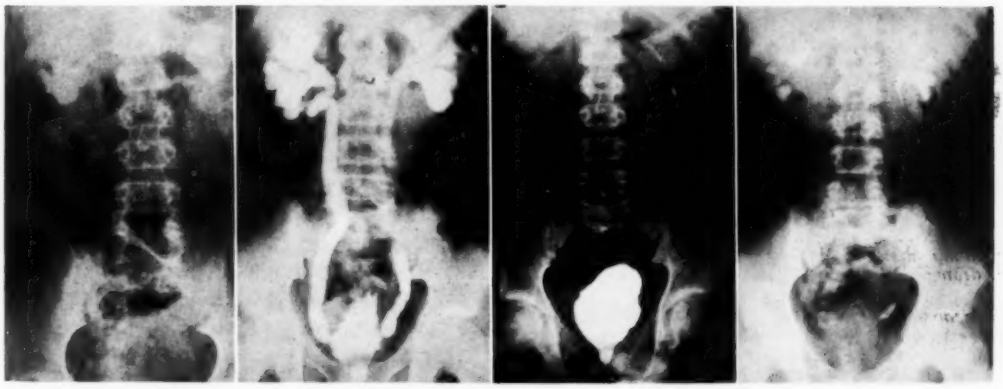

Fig. 2A Case 2

Preoperative intravenous pyelograms show delayed and diminished function with bilateral hydronephrosis and hydroureters.

Fig. 2B

Preoperative cystogram exhibits immediate bilateral reflux with hydroureters and hydronephrosis. Bladder trabeculation present.

Fig. 2C

Postoperative cystogram. Reflux has been corrected.

Fig. 2D

Postoperative intravenous pyelograms show marked improvement of function and decrease of hydronephrosis and hydroureters.

vanced hydronephrosis and hydroureters bilaterally. There was a lateral displacement of the sacrum and coccyx to the right. Cystograms (fig. 2b) revealed immediate reflux with dilatation of the ureters and calyces.

Cystoscopy revealed a trabeculated bladder with chronic cystitis and inflammatory changes. The vesical neck and prostatic urethra appeared normal.

Cystometrograms were unsatisfactory because of the severe flank pain produced by free reflux on filling of the bladder.

Preoperative diagnosis was bilateral vesico-ureteral reflux. Some neurogenic disturbance of the bladder was strongly suspected as well.

Treatment consisted of bilateral reimplantation of the ureters by a submucosal tunnel. This was successful in correcting the vesico-ureteral reflux (fig. 2c). There was marked improvement of the pre-existing hydronephrosis and hydroureters by excretory urography (fig. 2d). During a year's observation the urine has shown from 6 to 8 white blood cells. He has on occasions shown some bacilli. However, he has had no further recurrence of fever and chills, and the flank pain has been eliminated.

Case 3

A 6 year old white child gave a history of recurrent fever and chills over a period of two years. One year prior to admission he had several episodes of stomach "upsets", with cramps and difficulty in voiding. Studies at another hospital revealed infected urine and a left hydronephrosis. A left nephrectomy was performed. His symptoms persisted, and he was referred to this hospital for further evaluation and treatment.

On physical examination his temperature was 99°F., pulse 92, respirations 20, and blood pressure 120 systolic, 60 diastolic. He was a normally developed child. There was a well healed scar on the left flank.

Laboratory studies revealed a hemoglobin of 12.8 Gm. and a white blood count of 10,000 cu/mm. Urinalysis showed 10 to 15 white blood cells per high powered field. Urine cultures grew *E. coli*. Nonprotein nitrogen was 40 mg. per 100 ml.

Intravenous pyelograms (fig. 3a) showed a left hydronephrotic double kidney prior to nephrectomy. Intravenous pyelograms at this hospital showed a normal appearing right kidney with good function (fig. 3b). Voiding cystourethrograms (fig. 3c) demonstrated immediate reflux to the right kidney, with marked distention of the renal pelvis and reduplication of the ureters on the left side.

Cystoscopy revealed trabeculation of the bladder, early cellule formation, and a moderate contracture of the vesical outlet with a small median bar.

The preoperative diagnosis was contracture of the vesical neck with median bar formation, bilateral reflux, and reduplication of the left ureters.

The operative treatment consisted of excision of the double ureters on the left, reimplantation of the right ureter through a submucosal tunnel, and a Bradford-Young repair of the vesical outlet. This succeeded in correcting the vesicoureteral reflux on the right side (fig. 3d). Postoperative intravenous pyelograms showed good function in the remaining kidney and

Fig. 3A Case 3

Intravenous pyelograms made prior to left nephrectomy shows a double kidney on the left with hydronephrosis of the inferior portion.

Fig. 3B

Preoperative voiding cystourethrogram demonstrated the extreme dilation of the renal pelvis produced with voiding pressures in the presence of reflux. (The syringe is being used to deflect the voided stream).

Fig. 3C

Postoperative voiding cystogram. Reflux on the right has been corrected. The ureters on the left were removed. (Note improvement in bladder outlet).

Fig. 3D

Post-reimplantation intravenous pyelogram. Note absence of dilation of either calyces or ureter.

a normal excretory pyelogram (fig. 3e). The child's urine has remained negative. Urine cultures have been sterile, and he has remained completely asymptomatic. He has been observed over a period of two years.

Summary

Approximately ten per cent of children with urologic problems will demonstrate vesico-ureteral reflux. When present, this condition must be considered abnormal and treatment instituted to eliminate this condition. Delayed or voiding cystrograms must become a part of the urologic workup in any child with recurrent infections. This condition, if allowed to go untreated, will eventually lead to total renal destruction either from progressively increasing back pressure or from repeated infections. Unrecognized vesico-ureteral reflux may well be the explanation and etiologic factor in many adults seen in the terminal stages of chronic pyelonephritis. Conservative measures directed at eleminating the cause or contributing factors should be tried first. If these fail, reimplantation of the ureters becomes a necessity to prevent total renal injury or damage.

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SURGERY FOR DEAFNESS

J. Brown Farrior, M. D.
Tampa, Florida

PART I
STAPES, VEIN GRAFT AND FENESTRATION

PART II
TYMPANOPLASTY

In the past few years there have been more advances in the surgery for deafness than had occurred since the beginning of time. These advances began with the fenestration operation for otosclerosis,[1] followed by the indirect mobilization of the total stapes.[2] Now, with microscopic study of the stapes, we have many varieties of stapes operation designed to work around rather than through the otosclerosis and thereby to increase quantitatively and qualitatively the lasting restoration of hearing.[3-6] Concomitantly the five types of tympanoplasties have been developed to close perforations in the ear drum and to reconstruct a hearing ear[7, 8] in chronic otitis. These are changing times. The purpose of this presentation is to acquaint you with what your otologist can do for your hard-of-hearing patient, whether the cause is otosclerosis or a perforated ear drum.

Presented at the meeting of the South Carolina Medical Association, Columbia, S. C., May 14, 1959.
Adapted from "Surgery for Deafness", Miss. Med. Jn. 1959.

PART I
STAPES OPERATIONS
MOBILIZATIONS AND VEIN GRAFTS

Introduction

The deafness in otosclerosis is caused by small overgrowth of bone which immobilizes the stapes and seals the inner ear. This growth of bone varies greatly in size, character, and location.[9] The growth of bone may be thin and fix only a margin of the footplate of the stapes, or it may be thicker and fix one or both crura (legs) of the stapes, or it may even completely obliterate the oval window niche.

The original indirect total stapes mobilization operation produced lasting results only in the smallest, thinnest otosclerotic lesions. With the indirect techniques, the entire stapes was mobilized by pressure on the incus, (Fig. 1)

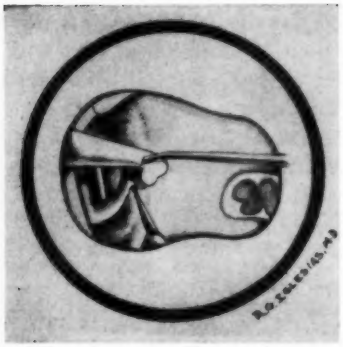

Fig. 1. The original indirect mobilization of the total stapes, with the force directed at the incus, head or neck of the stapes, is now indicated only when the stapes is deeply placed and there is very limited otosclerosis fixing the anterior footplate. The original total stapes mobilization gave a lasting hearing improvement in about a third of cases. The newer techniques, which by-pass the otosclerosis, have more than doubled the good results.

head or neck of the stapes (Rosen).[2] The crura frequently fractured, or the growth of otosclerosis refixed the stapes because of crural otosclerosis. Current stapes operations are designed to by-pass the otosclerosis and work through normal stapedial footplate (Farrior).[10]

When the anterior leg of the stapes is cemented in the otosclerotic bone, a section of this leg must be removed to permit the free movement of the posterior half of the footplate of the stapes and the back leg of the stapes (Fig. 2). The removal of a portion of this anterior crus is called an anterior crurotomy. The anterior crurotomy is one of the best operations on the stapes. It is the operation of choice in all anterior otosclerotic lesions because it gives the best hearing with the least tendency toward refixation.

Fig. 2. When the anterior crus (front leg) of the stapes is cemented in the otosclerotic area, a section of the anterior crus must be removed. This is called an anterior crurotomy and is accompanied by mobilization of the posterior half of the footplate and the posterior crus, (leg). Anterior crurotomy is one of the best operations on the stapes giving the best results quantitatively and qualitatively.

When both crura of the stapes are cemented in the otosclerotic area (Fig. 3), special surgical techniques are required to prevent refixation. When the oval window niche is wide, crural repositioning is the procedure of choice; in this procedure the back leg (posterior crus) of the stapes is chiseled out of the otosclerotic site and repositioned over the central mobilized impacted area of normal footplate (Farrior[4].) A narrow oval window niche, or surgical or pathological destruction of the crura, requires artificial crura made either of polyethylene tubing or fine, stainless steel wire. These special surgical techniques usually give lasting results in that difficult 20 per cent of cases with bi-crural otosclerosis.

Fig. 3. When both crura of the stapes are cemented in the otosclerotic area, special techniques are required, depending upon the width of the oval window niche. When the oval window niche is wide, the posterior crus may be chiseled out of the otosclerotic area and repositioned over the central area of mobilized normal footplate (see illustrations). When the oval window niche is narrow the otologist inserts artificial stapedial crura of polyethylene or stainless steel.

When the entire footplate of the stapes is replaced by otosclerosis, unless the otosclerotic area is very thin, there is little chance for a lasting successful restoration of hearing with a total stapes mobilization. Therefore, in this complete footplate otosclerosis, a new window window must be made into the inner ear (Fig. 4). This new window may be made by

removing the footplate of the stapes and covering the oval window with a vein graft (Shea[5]). This is usually accompanied by the insertion of an artifical crus of polyethylene tubing. When there is mountainous otosclerosis, completely obliterating the oval window niche, the new window is made in the horizontal semi-circular canal (the classical, reliable and predictable fenestration operation).

FENESTRATION OPERATION

The fenestration operation remains the master surgical procedure for the restoration of hearing in conductive deafness. The fenestration operation is indicated in an inoperable stapes with a functioning round window and good inner ear function. The fenestration operation may be performed when stapes surgery has failed. The fenestration operation is indicated when the stapes is inoperable from extensive otosclerosis, previous stapes surgery,

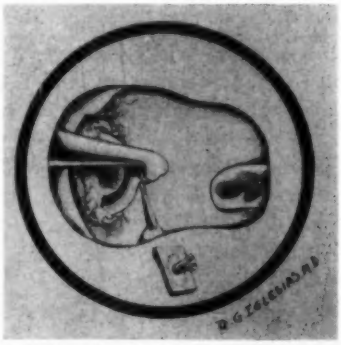

Fig. 4. When the entire stapedial footplate is replaced by thick, vascular otosclerosis, this is a pathological indication for the fenestration operation or the oval-window and vein graft.

or the fibrosis of previous infection. The fenestration operation is indicated whether this conductive deafness is the result of otosclerosis or chronic ear infection. Performed with microscopic perfection, the fenestration operation is the most reliable and predictable operation on the ear for the permanent restoration of a worthwhile hearing improvement.

Microscopic Diagnosis

Today, with microscopically accurate diagnosis of the surgical pathology of the stapes, the otologist can plan a variable surgical attack on the stapes, oval window, or horizontal canal, which has an every increasing possibility of giving a lasting restoration of hearing.

PART II
TYMPANOPLASTIES

Introduction

The hole in the ear drum remained open from the time of the caveman until the 1950s. Only in the past few years have we mastered the microscopically accurate surgical technique which permits the reconstruction of a new ear drum with the patient's own skin. These new ear drums seal the middle ear from outside infection and can frequently restore hearing to the near-normal level. Through plastic surgery of the ear drum, these patients can be permitted to swim without the fear of starting a dangerous mastoid infection.

While the American surgeons were busy restoring hearing through the fenestration operation and the variable stapes operations, the European surgeons,[7, 8] developed and standardized the types of tympanoplasties for the closure of the perforation in the ear drum in chronic ear infections. This plastic surgery was inspired undoubtedly by the great numbers of chronic ear infections which resulted from inadequate therapy in Europe during the war years.

The purpose of all tympanoplasties is, first, to reconstruct a new ear drum with the patient's own skin and, secondly, to improve the transmission of sound to the inner ear by utilizing all or any part of the remaining chain of auditory ossicles and protecting the round window. Depending upon the amount of air-containing space in the middle ear and the part of the ossicular chain utilized. tympanoplasties are divided into a basic classification of five types: myringoplasty, tympano-incudoplasty, tympano-stapedio-plasty, hypo-tympanoplasty, and the fenestration.

For the remainder of your lifetime, you will hear these operations referred to as Type I, II, III, IV and V; therefore, you will be interested in a brief definition of the basic types of tympanoplasty.

Type I—Myringoplasty: The myringoplasty is the closure of the perforation in the ear drum, utilizing the complete, freely movable, ossicular chain (malleus, incus and stapes).

The myringoplasty, Type I, is the most gratifying of all the tympanoplastic procedures for most frequently the hearing will be returned to the normal or near-normal level and the patient has a new, near-normal ear drum.

Type II—Tympano-incudo-plasty: When the joint between the incus and malleus has been destroyed by the chronic disease process, the new ear drum (skin graft) omits the use of the malleus and is attached directly to the incus. As the incus is frequently destroyed by the disease, the surgeon rarely finds an opportunity to utilize the tympano-incudo-plasty, but when the proper pathological circumstances are found, the tympanoplasty, Type II, tympano-incudo-plasty, can restore the hearing to the near-normal level.

Type III—Tympano-stapedio-plasty: When the malleus and incus have been destroyed by the disease process, the new ear drum (skin graft) is brought into contact with the remaining stapes. The tympano-stapedio-plasty, tympanoplasty Type III, will restore the hearing to the near-normal level and is one of the more useful and frequently employed types of tympanoplasties.

Sometimes the crura of the stapes have also been destroyed by the disease process. Under these circumstances, it is frequently possible to utilize a remaining portion of the incus or malleus to cover the footplate of the stapes, simulating new crura. This ossicular repositioning to simulate the legs of the stapes is classified as tympanoplasty Type III-B, and will usually give better results than Type IV tympanoplasty, where there are no legs on the stapes.

Type IV—Hypo-tympanoplasty: When the disease process has destroyed the malleus, the incus, and the crura of the stapes, the new ear drum (skin graft) can be utilized to cover and protect the round window. This creates an air space in the hypo-tympanum from the eustachian tube to the round window. In the severely handicapped, this will give a partial hearing improvement but where possible every effort should be made to perform a Type III or III-B, a tympano-stapedio-plasty.

Type V—Fenestration of the horizontal canal: When the disease process has destroyed the malleus, incus and crura of the stapes and filled the oval window with irremovable scar tissue, and when the round window is normal, a new oval window can be made in the horizontal semi-circular canal, the classical fene-

Fig. 5. The hole in the ear drum remained open from the time of the caveman until the 1950's. With microscopically accurate plastic technique, a new ear drum can now be reconstructed with a free skin graft. The type of tympanoplasty utilized is dependent upon the remaining portion of the auditory ossicles—the malleus, incus and stapes.

stration operation. With the new ear drum covering the hypo-tympanum, and extending upward over the round window and fenestra, the hearing can be restored to the 30 decibel level. This enables the patient to understand most conversations at 10 to 15 feet. The Type V tympanoplasty (fenestration) is rarely performed as a primary procedure, but is usually performed as a secondary procedure when Type III or Type IV have failed to produce a satisfactory hearing improvement yet the eustachian tube, the round window and hypotympanum are functional.

Do not let all of these terms confuse you, all you need to remember is the myringoplasty and the tympano-stapedio-plasty, (Type I and III). These are the types most frequently employed and, where applicable, these are the types which will give your patients the best hearing improvement.

Mastoid Infection

Many perforations in the ear drum are associated with chronic infections of the eustachian tube, middle ear and mastoid. The infection, or cholesteatoma, must be treated or operated upon before a successful result can be obtained through a tympanoplasty. Therefore, a modifiel radical mastoidectomy (Fig. 6), or an at-

ticotomy, is frequently combined with any of the above types of tympanoplasty either in a one-stage or a two-stage operation. These combined mastoidectomies and tympanoplasties are among the most difficult and tedious of all surgical procedures on the ear.

Fig. 6. Perforations in the ear drum are frequently associated with chronic mastoid disease; this requires a combined mastoidectomy and tympanoplasty. In the above illustration, the sac of a cholesteatoma has destroyed part of the incus and dissected under the incus to fill the mastoid antrum. This normal stapes and the mastoid disease are an indication for a modified radical mastoidectomy and a tympano-stapedioplasty.

Chronic infection in the eustachian tube and adjacent hypo-tympanum is one of the great causes for failure in tympanoplasty; therefore, the otologist must be on the continuous alert for the detection and treatment of eustachian tube and middle ear disease.

CONDUCTIVE DEAFNESS

The modern operations are designed to improve the hearing in conductive deafness where the inner ear is good but the sound does not reach the organ of Corti. To determine the opportunity for improvement, preoperatively the inner ear is tested by the bone conduction. In your office, you can test the bone conduction by placing a tuning fork on the mastoid. Characteristically the patient hears better by bone conduction than by air conduction. The same test may be simulated by placing a loud watch on the mastoid. Your otologist will use the bone conduction oscillator of the calibrated audiometer. With this method, the inner ear function is carefully measured and the possible good results of surgery may be accurately predicted.

Characteristically patients with conductive deafness can understand clearly if the sound is loud enough to reach the organ of Corti. In your office, if you will talk loudly, directly into the patient's ear, and you are clearly understood, the possibilities are that your patient can be helped through ear surgery. If the loud voice annoys the patient, or remains indistinct, then surgical benefits are doubtful. With the audiometer, the speech discrimination is measured and the possible results of surgery may be predicted more accurately.

Preoperative Testing

The possible restoration of hearing from tympanoplasty can be predicted and anticipated, by inserting an artificial drum, by testing the mobility of the ossicular chain with an acoustic probe or by sound protection of the round window.

The artificial ear drum: As an office procedure an artificial ear drum can be inserted to close temporarily a perforation of the ear drum to determine the anticipated restoration of hearing through a tympanoplasty. If the ossicular chain, (the malleus, incus and stapes) is freely movable, the patient will experience a dramatic hearing improvement. A tympanoplasty should produce the same hearing improvement as the artificial drum.

Acoustic probe: As an office or operating room procedure, the mobility of the ossicular chain, (malleus, incus and stapes) may be determined with an acoustic probe attached to an audiometer or a tuning fork. The purpose of the acoustic probe is to compare the bone conduction of the promontory of the cochlea with that of the malleus, the incus, and the stapes. If the bone conduction is best at some point on the ossicular chain, then there is a good possibility of hearing improvement through the appropriate type of tympanoplasty. This testing, along the ossicular chain, helps to determine the indicated type of tympanoplasty, I, II, III, IV or V.

Round window protection: In very large perforations the sound waves reach the oval and round window at the same time and, therefore, do not adequately stimulate the organ of Corti. The hearing can sometimes be improved by protecting the round window with an ointment or cotton. This possible improvement helps to evaluate the possible

permanent restoration of hearing with the appropriate tympanoplasty. The sound protection of the round window is one of the basic principles of all middle ear surgery.

ACUTE PERFORATIONS

Acute perforations of the ear drum usually heal spontaneously or with office treatment. This is usually true whether the perforation is the result of an acute otitis media, blast injuries, traumatic injuries, or water injuries from skiing. The general exception to this rule is the anterior-inferior perforation which is produced by slag injuries in metal workers—these slag perforations frequently require a myringoplasty.

When a patient with an acute perforation comes into your office, the important thing to remember is not to put drops in the ear, for this will frequently introduce infection into the middle ear, produce mastoiditis, and complicate the disease. If infection has been introduced into the middle ear, as in all water-ski perforations, the patient should be placed on large doses of antibiotics until all inflammatory reaction subsides.

The History

In otosclerotic deafness, characteristically there is a gradual loss of hearing beginning in adolescence or early adult life. Rarely does otosclerotic deafness begin in childhood or after the age of fifty.

In perforations of the ear drum, there is usually a childhood history of otorrhea or recurrent otitis media. In perforated ear drums, the best results are obtained when the infection has not destroyed the chain of auditory ossicles, the malleus, incus and stapes.

Summary

1. Under the operating microscope, the surgical pathology of the middle ear becomes significantly more variable than the pathology of any cavity in the entire body.

2. For the surgical restoration of hearing, the otologist has seven types of stapes operations—five types of tympanoplasties, and the fenestration operation.

3. The newer types of stapes operations are designed to by-pass the otosclerotic area and work through a normal stapedial footplate, and thereby to improve the percentage with lasting successful restoration of hearing.

4. The operations upon the stapes are: Total stapes mobilization (direct or indirect), anterior crurotomy, posterior crural repositioning, artificial cruralization, and the oval window window and vein gaft.

5. The types of tympanoplasties are: The myringoplasty, tympano-incudo-plasty, tympano-stapedio-plasty, hypo-tympano-plasty, and the fenestration. The indication for each type is dependent upon the remaining portions of the auditory ossicles—the malleus, incus, and stapes.

6. Profound surgical judgment is required for the otologist to evaluate these microscopic variations in the surgical pathology and to apply the appropriate surgical technique to obtain the maximum restoration of hearing through the tremendous surgical armamentarium of the modern otologist.

7. The fenestration operation remains the master surgical procedure for the restoration of hearing in conductive deafness. It is indicated when the stapes is inoperable, the round window is functional, and there is a good inner ear.

8. In stapes mobilization failures, a good result can frequently be obtained by the use of artificial crura or by fenestration of the oval window and a vein graft.

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CARDIAC RESUSCITATION
A REVIEW AND REVISION

W. H. Lee, Jr., M. D.* and J. M. Stallworth, M. D.*

Any physician engaged in the active practice of clinical medicine may at some time during the course of his career be suddenly presented with the problem of treatment of the catastrophic cardiovascular syndrome of "cardiac arrest". Such a situation will undoubtedly present itself numerous times to those practitioners engaged in surgical careers. While the practicing surgeon is obliged to familiarize himself with the current methods utilized in the emergency resuscitation of the heart, it is advisable that all physicians take note of this ever increasing problem.

Cardiac arrest is defined as a sudden cessation of effective circulation, necessitating manual systole, or electro-shock, or both (with or without drug therapy) in order to re-establish an effective circulation.[1]

The actual incidence of cardiac arrest in the operating room is reported by most authors as being in the range of one in three thousand operations. This may be further sub-divided as one in one thousand cases involving old or poor risk cases.[1] These figures are approximately the same for both England and the United States, but are probably somewhat less than the true incidence due either to failure on the part of physicians to report their cases, or failure to make correct diagnoses as to the cause of sudden death. Hosler[2] has observed that cardiac arrest will probably occur six to twelve times each year in any moderate sized general hospital. Milstein[3] reports that half of the anesthetic deaths which occurred in England during a recent period were due to cardiac arrest. The mortality rate in this group was 60 to 70 percent.

Etiology

The etiology of cardiac arrest is divided into six major subgroups:

(1) The most important of these groups consists of any factors which produce hypoxia of either the heart or brain, such as airway obstruction, inadequate ventilation, pulmonary alveolar disease, bronchial disease, inadequacy of oxygen supply, inadequacy of circulating hemoglobin or red blood cells, hypotension from any cause, deficient blood volume, and coronary atherosclerosis.

(2) The second major group is broadly termed reflex stimulation. This term describes many types of myocardial arrest presumed to be related to vagal hyperactivity initiated on a reflex basis.[4, 13] These arrest problems occur especially during the intubation and extubation phases of anesthesia, and often occur during endoscopic procedures.

(3) This group is termed direct manipulation of the heart (operative or traumatic). This factor is encountered most frequently in patients who have pre-existent heart disease, especially those who undergo corrective cardiac surgery.

(4) This group consists specifically of those cases of ventricular fibrillation which occur as a result of rapid shifts of the CO_2 content or pH of the blood from the acidotic to the alkalotic ranges.[5, 6] This situation commonly occurs, for example, on the operating table, at the termination of a surgical procedure, when the anesthetist, in preparation for extubation, hyperventilates and hyperoxygenates the patient who has been allowed to become somewhat hypercapneic and minimally sub-oxygenated during a long surgical procedure.[7]

(5) This group consists of those cases of ventricular fibrillation which occur as a result of the phenomenon termed the "rebound adrenal response". Such situations occur as a result of the excessive production of intrinsically produced catechol amines, especially in patients who have been subjected to generalized hypoxia or sub-oxygenation in the presence of a rapid pH shift from the acidotic to the alkalotic range. The overcompensatory production of catechol amines by the adrenal gland, as a result of noxious stimulation, has been re-

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ported in the presence of a reduced cardiac output with hypotension, and during cardiopulmonary bypass procedures at reduced flow rates during "open heart" cardiac operations.[8, 9]

(6) Another explanation for the mechanism of ventricular fibrillation and cardiac arrest during surgical procedures has recently been advocated by Gordon and Jones.[10] These authors propose that the production of ventricular fibrillation is caused by explosive ionic imbalances acting on the myocardium. Specifically, the major ionic imbalance implicated in this experimental data is that of rapid extreme increases in potassium resulting from anoxia, hypercapnia, hemorrhage, etc., from endogenous source. These concepts have been supported by the findings of Goott et. al.,[11] who suggested that the etiological factors of ventricular fibrillation were primarily related to rapid critical ionic shifts, with the time and relative values of the ionic shifts being of far greater importance than the absolute values. Ashmore[12] and Gordon[10] have demonstrated also that small doses of potassium citrate injected into the coronary circulation in attempting to produce controlled cardioplegia most frequently results in ventricular fibrillation, whereas larger doses produce the desired cardiac arrest.

Treatment

Optimally, treatment should be carried out by a trained team maintained in hospitals, according to a previously planned course of action. This, of course, is usually impossible except in larger medical centers, therefore it becomes necessary for every physician to be cognizant of the general principles of treatment. Clinical and experimental investigators generally agree that the safe limit of cessation of cerebral circulation is in the range of four minutes.[14, 15] In the majority of cases, interruption of cerebral blood flow for longer periods results in more or less major degrees of permanent neurological injury. However, treatment should not necessarily be abandoned if more than four minutes of time has elapsed since the onset of cardiac arrest, in that numerous cases have been reported of successful resuscitation following periods of arrest longer than 10 minutes. In children, particularly, the time limit should be extended beyond which a successful resuscitation may be generally expected.

Certain technical facilities are a prerequisite before the treatment of cardiac arrest may be initiated. Foremost among these is the availability of a method for the administration of positive pressure oxygen, after the establishment of a patent airway. Cardiac resuscitation cannot be effective without adequate positive pressure ventilation and re-oxygenation of the patient. In addition, a few basic surgical instruments are needed to perform the emergency thoracotomy. Obviously, an attempt at a cardiac resuscitation on the golf course or a downtown sidewalk is an unjustified and undesirable bit of medical melodrama. Nevertheless, when a diagnosis of cardiac arrest is clinically suspected, and the patient is potentially salvagable, and there is available a method of administering positive pressure oxygen, as well as a knife to open the chest, immediate left thorocotomy is indicated in order to definitely establish the diagnosis, and initiate treatment. Sudden and absolute absence of detectable blood pressure or pulse are the only diagnostic criteria necessary for thorocotomy in this instance.

While the recovery of all cases of cardiac arrest which occur in the operating room is in the range of 25 percent, the expected recovery of patients sustaining arrest outside of the operating room is probably less than half of this.[16] Beck, Hosler, and others have contributed substantially to the principles of the treatment of cardiac arrest by emphasizing the fact that treatment should be divided into two basic procedures. The first is the administration of oxygen by positive pressure, either by mask or endotracheal tube, with immediate thorocotomy and cardiac massage (manual systole). Johnson and Kirby[17] have stated that the heart should be massaged within 15 seconds after beginning the thoracic skin incision; however, care should be taken to avoid laceration of the heart or lung during this phase. The incision of choice is made transversely in the left fourth or fifth intercostal space. After the first two or three massages, the pericardium should be opened (avoiding the phrenic nerve) to render manual

systole more effective. Both clinically and experimentally a systolic blood pressure of 60-70 mm. of mercury can be easily maintained by effective cardiac massage. The surgeon should avoid using the thumb in compressing the heart whenever possible, since this has resulted in rupture of the anterior myocardial wall.[2] Ideally, the heart is massaged by compressing it between the two palms of both hands, or compressing the heart against the sternum with the palm of one hand, depending upon the size of the heart, the chest incision, and other technical factors. Some authors advise compressing the thoracic aorta (descending) in order to increase the blood flow to the myocardium and brain during the initial minutes of cardiac massage. However, thoracic aortic occlusion is definitely inadvisable for periods longer than 10 minutes because of the possibility of damage to the spinal cord and adrenals.[2]

Massage should continue at a rate of 60 to 80 beats per minute, for at least 10 to 20 minutes while deciding on further therapeutic measures.[19] Many arrested hearts will restart after 6-12 effective manual systoles. Most hearts with good tonus will regain an effective beat within 20 minutes. Ventricular fibrillation and cardiac asystole may usually be differentiated by inspection and palpation. However, during the 10 to 20 minutes of manual systole before other therapeutic measures are initiated, the exact nature of the cardiac arrest should be confirmed by electrocardiographic tracings. The first stage then of the treatment of cardiac arrest, is the initiation of an artificial circulation by means of cardiac massage, and positive pressure oxygen administration. The second part of the resuscitation procedure consists of the re-establishment of a spontaneous organized cardiac contractility. In many instances, spontaneous cardiac action will resume during the first phase of the resuscitation procedure. This is particularly true of those hearts which have arrested in a dilated asystolic phase. The heart which is fibrillating when the chest is opened is most apt to resist the measures of oxygenation and cardiac massage. The second stage of resuscitation may be then divided into treatment depending upon the type of "arrest" which is present after the 15-20 minutes of effective massage.

A. Ventricular fibrillation. Electroshock therapy is considered to be the treatment of choice. The fibrillation may be of two types. If it is weak with tiny fibrillatory disorganized writhings, an initial shock may be attempted to re-initiate and organize cardiac rhythm. If this is unsuccessful, the fibrillation may be strengthened and coarsened by the injection of .5 ml. of a solution of 1:1000 epinephrine in 5 ml. of saline. This converted strong fibrillation is usually more susceptible to the electroshock methods which are described as follows:

The metal plates of the electrodes should be covered with moist sponges to prevent burns to the heart. For average treatment, the recommended voltages vary from 110 volts to 135 volts in one to three rapidly spaced contacts for durations varying from .1 to .5 seconds per shock. If the initial shock of 110 volts, administered twice in rapid succession at .1 second duration is unsuccessful, the next step should probably be a rapid series of 4-6 interrupted shocks of .1 second duration with voltage of 110 to 120. If this is unsuccessful, the voltage could be increased to around 135, and the duration to .5 seconds. The refractory periods of cardiac muscle is approximately .1 second. Therefore, extending the duration of shock over .5 seconds is not only unnecessary but undesirable, as heat generated by the electrical current may produce an irreversibly refractory state of the muscle fibers of the heart, rendering it non-susceptible to electroshock conversion. If the heart becomes refractory to electrical stimulation, the pericardial sac should be irrigated with cool saline solution, to reduce the temperature which has been produced by electroshock therapy. Massage of the heart should be continued between attempts at defibrillating the heart with electroshock. No effort should be made to defibrillate the heart until the myocardium and brain are re-oxygenated by a positive pressure administration of oxygen and cardiac massage for at least 5-10 minutes, preferably 10-20 minutes. Kirby and Johnson[17] have recommended 220 volts for .1 second for those cases refractory to the lesser voltage, but certainly this

higher voltage will result in a higher incidence of refractory muscle due to burning.

B. Cardiac standstill. If the heart is still in asystolic arrest at the end of the first phase of the cardiac resuscitation, one of the two methods of re-instituting a cardiac beat may then be attempted. The electrical pacemaker may be applied to the heart and a rhythmic beat initiated electronically. This has not been frequently successful in the hands of many investigators (including the authors). The other method of reinstituting a cardiac beat is the introduction of various chemicals into the left ventricle through its apex followed by massage which forces the solutions into the proximal aorta and thence into the coronary circulation. A number of different solutions have been recommended by different authors. A solution of .5 ml. of 1:1000 epinephrine in 5 ml. of saline, has probably been the most successful cardiac stimulant in the hands of most investigators. Kay and Blalock.[18] however, have reported that 2 ml of 10% calcium chloride solution has been as sucessful, clinically, as epinephrine in the stimulation of the cardiac beat. Calcium chloride specifically stimulates heart tone and frequently converts a flabby, dilated heart into one with good muscular tonus which may be more susceptible to other stimulation. Shannon[29] and others have recommended the intracardiac injection of 1 ml. Levophed (= 1 mg. base) (levarteronol bitartrate) for stimulation of the arrested myocardium. Nathanson and Miller[20] and the authors have successfully used .02 mg. of Isuprel (isoproterenol HCl) injected directly into the left ventricle. Pronestyl (procainamide HCl) or procaine hydrochloride have been used successfully to diminish cardiac irritability in the cases of ventricular fibrillation, resulting usually in cardiac standstill and then the re-initiation of a spontaneous cardiac rhythm by massage or by further drug therapy. Occasionally, this procedure alone may completely revert the fibrillation to an organized rhythm.* The authors have found a successful routine in some cases of ventricular fibrillation during or just after cardiopulmonary bypass to consist of injection of 1 to 4 ampules of Regitine hydrochloride, (phentolamine HCl) followed by the administration of 100 to 400 mg. of Pronestyl, (procainamide HCl) to produce cardiac standstill, then to stimulate the heart with either Isuprel or norepinephrine to initiate the beat. This procedure has been used particularly in cases of ventricular fibrillation occurring during the process of cardiopulmonary bypass at perfusion flow rates which result in acidosis and "rebound" sympatho-adrenal activity.[8, 21-23] If the heart, which is in standstill in cardiac arrest, does not respond to the injection of Levophed or epinephrine, the refractoriness may be due to a marked acidosis secondary to ischemia.[24-26] If the heart is not in ventricular fibrillation, and there is no response to the injection of Levophed or epinephrine, a solution of sodium bicarbonate may be given in an attempt to convert the acidosis to a relative alkalosis and thus regain the susceptibility of the cardiovascular vasopressor and cardiac contractility mechanism to the catechol amine stimulation.[24, 25, 27] This may result in ventricular fibrillation, which can usually be converted by electroshock therapy. Silverman and Eichart[28] have reported stimulating the myocardium with molar sodium lactate, but later studies[27] have indicated bicarbonate to be the better drug.

Efforts to resuscitate the heart should probably be continued as long as 60 to 80 minutes since successful resuscitations have been reported after several hours of massage. Each case must be decided on the basis of the probable brain damage, the elapsed time before massage, pupillary signs, and the general salvagability of the patient. In general, after the heart has been re-started, the patient should be observed for 20-30 minutes with the chest open. If the cardiac rhythm appears to be stable at that time, the chest should be closed in the operating room, observing the usual precautions of sterility and hemostasis. Attention should be directed to blood transfusions, electrolyte imbalance correction, digitalization, the administration of antibiotics, and other general supportive measures. If the patient remains comatose after 12 hours, a tracheostomy should be done prophylactically. The onset of cerebral edema within 24 hours, (usually 10-18 hours after cardiac resuscita-

*One case by one of the authors (J. M. S.)

tion) should be carefully observed. Death associated with convulsions is the most frequent result of cerebral edema due to cardiac arrest. The treatment of this complication consists of the administration of salt poor serum albumin, Diamox (acetazolamide) or 30% urea solution, fluid restriction, and other general measures in the treatment of cerebral edema.

Summary

The survival rate of patients having been resuscitated from cardiac arrest and ventricular fibrillation is about 25 per cent. In view of the increased recognition of this catastrophe both by the lay public as well as the physicians, it has become essential for all hospitals to be prepared for this emergency and for all physicians to be familiar with the techniques of cardiac resuscitation.

Of the many causes for cardiac arrest, myocardial hypoxia is, by far, the chief offender. Accordingly, an adequate oxygen supply and an ample hemoglobin stock are as necessary in the prevention as in the treatment of this disorder. Resuscitation will universally fail in the presence of anoxia or anemia.

The treatment of cardiac arrest is the correction of the cause of anoxia, initiation of cardiac massage immediately, replacement of blood when necessary, and maintenance of cardiac massage until a specific cause can be demonstrated or until the patient shows signs (as dilated pupils) of irreparable brain damage. In many instances, manual systole in the presence of adequate oxygen intake is sufficient to restore normal heart rhythm. In the remaining cases, chemical myocardial stimulants such as epinephrine, nor-epinephrine, calcium chloride, and Isuprel may be used for the flabby depressed hearts, or depressents such as novocaine may be needed for the irritable myocardium. These chemicals may be employed in the absence of or in conjunction with the electrical defibrillator and stimulator.

It is necessary to be more than conversant with these resuscitative measures. If these patients are to be revived, every physician must be able to make an early diagnosis of cardiac rhythm failure and to apply logical resuscitation methods according to the cause of the difficulty at hand.

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THE GREENVILLE COUNTY MEDICAL SOCIETY

HISTORICAL SKETCHES
4. MEDICAL GREATS

J. DECHERD GUESS, M. D.

This is the fourth of a series of articles, adapted from the book *A Medical History of Greenville, South Carolina*, written by the same author, and which will be published by the Greenville County Medical Society in 1959.

There was a relatively small group of doctors who played gigantic roles on the stage of Greenville's medical history. These men varied in their talents and in the scope of their activities. Nevertheless they were great men, and they were great doctors. Because of unusual health and unusual longevity, they continued their activities well beyond the usual life's span, and most of them lived until near the middle of the twentieth century.

They continued to be substantial citizens and to be held in high esteem as doctors by the community up almost to the time of their deaths.

The first of these unusual men was Dr. Davis Furman who was born in 1858 and died in 1931 at the age of 73.

Dr. Furman studied medicine at the Medical College of Louisville and received his M. D. degree from the University of Maryland. He practiced for short periods of time in Leadville, Missouri, then somewhere in Tennessee, then in Pelzer, S. C., and finally in Westminster before he came to Greenville in 1891. It has been said that a rolling stone gathers no moss. If moss is synonymous with wealth, Dr. Furman was no exception to the rule. However, as he moved from location to location, he acquired maturity, and experience, and a personality which made of him a great family doctor as was evidenced by the large practice he had soon built up in Greenville. His practice was largely for the better educated and more elite people of the community. Many of them remained his patients and his loyal friends up until the day of his death. It was written of him after his death that, "He was not only the ideal family doctor, but he was the perfect family friend. He may have been called in as a physician, but before he left, somehow you had the feeling that you were richer by another friend. He had the rare gift of making himself a real part of every family circle he treated."

Dr. Furman's contribution to the medical history of Greenville was more than that of a popular and skillful family doctor. He took an active and astute interest in public health before public health was a recognized part of medical service. The city board of health was organized in 1888. Dr. Furman was its chairman from 1911 to 1925. He was influential in establishing a county board of health. This was done in 1916. Later Dr. Furman was a member of the State Board of Health. In and before 1910, pellagra was a scourge in the Piedmont. Dr. Furman became greatly interested in the disease, and he became a widely recognized authority on its diagnosis and treatment, long before its relationship to vitamin deficiency was recognized.

A facet of his interest in public health, and no doubt an outgrowth of his observation of the hazards of an impure water supply, was Dr. Furman's insistent advocacy of a pure water supply for Greenville. It was largely because of his scientific leadership and his ability to secure the cooperation of business and industrial leaders that the Table Rock watershed was purchased and an adequate and uncontaminated water supply was assured for the city.

In 1905-1906, Dr. Furman was president of the South Carolina Medical Association. He had consistently shown an active interest in both the scientific and other work of the Association during the preceding year, the first year after its reorganization. He succeeded Dr. Robert Wilson. *The Journal* of the State

Association began publication in June after his election to the presidency. Dr. Wilson had been chosen to be its editor. Dr. J. W. Jervey was councilor of the Fourth Medical District that year.

This was a momentous year for South Carolina medicine. Dr. Robert Wilson in his presidential address the year before had referred to the new constitution which had been adopted. Referring to the new constitution of the American Medical Association, he said that the "South Carolina Medical Association had entered into league with other state associations to form the national organization." He continued, "The county society was the unit of the State Association, which was a federation of county societies, and no doctor could be a member of the State Association except through membership in his county society."

Referring to county society meetings, Dr. Wilson insisted upon monthly meetings and said, "Whatever else is done (in the county society meetings), a paper should be read at every meeting and discussion encouraged . . . It may be instructive and stimulating to hear a well written article, or to listen to a critical discussion, but it is vastly more beneficial to do the writing and the discussing yourself."

No doubt Dr. Furman felt the same way. He had a paper in the first number of *The Journal*. His subject was "Cerebral Spinal Meningitis and Hydrophobia."

The Greenville County Society was not included in the roster of members of the State Association until November, 1905. This was several months after Dr. Furman's election to the presidency of the State Association. There were at that time thirty members of the county society.

The Fourth District Medical Society was organized by Dr. Jervey in Febrary, 1906. Sixty doctors were present.

At the annual meeting of the Greenville County Society in January, 1906, Dr. C. C. Jones was elected president, and Dr. C. T. J. Giles was made vice-president. J. Adams Hayne was elected secretary. Dr. Hayne read a paper on diphtheria. Twenty members were present at this meeting.

The March issue of *The Journal* contained two papers by Greenville doctors. Dr. E. W. Carpenter had a paper on, "The Modern Mastoid Operation," and Dr. Curran Earle had one on, "A Case of Contracted Pelvis Relieved (sic) by Caesarean." Later in the year, Dr. Carpenter published a paper in *The Journal* on "Headache Cause and Cure." Dr. Curran Earle published one on "Should There Be a Division of Fees," Dr. Furman wrote a paper on "Observations on Hydrophobia," and Dr. J. Adams Hayne published one on the "Pathology and Therapy of Gall Stones."

After his death, it was written of Dr. Furman in one of Greenville's papers: "Dr. Furman was not only a physician of unusual ability. He was in addition a citizen who evidenced in remarkable degree a most active interest in public affairs of this community, and whose activities, particularly in connection with matters concerning the public health, have been very fruitful in bringing into existence public policies that have been of great benefit to Greenville and the surrounding area."

Dr. H. B. Stewart had an unusually long and active life. He was born in 1855 and died in 1947. He received the M. D. degree in 1879 from the old Atlanta Medical College. After graduation he located in the Fairview community in the lower part of Greenville County, where he remained all of his life. It was one of his boasts—he had several—that he was a horseback doctor for 25 years; a horse and buggy doctor for 12 years; and a contender with the temperamental early automobile until it had ceased to be so. He claimed to have conducted over 4,000 obstetric deliveries, with the birth of two sets of triplets and ten sets of twins, all without a maternal death *during labor*. He prided himself on having never requested the payment of a fee. He claimed to be the servant of the people of his community.

In a sense, he erected his own monument, when he erected in the Fairview Church cemetery a monument to the family physician. On the north side of the monument he had inscribed the words, "Dedicated to the memory of the Family Physician"; on the south side, "In memory of those who keep the Home Fires burning while the doctor is away on his missions of mercy"; on the east side is a hand holding a typical medicine satchel; and on the

west side are the words, "Donated by H. B. Stewart, M. D., A. D. 1929."

Dr. C. T. J. Giles lived and practiced until he was 77 years of age, but he did not outlive his usefulness. He was born in 1869 and died in 1945. He graduated from the Medical College of the University of Georgia. He was a charter member of the Greenville County Medical Society and was its vice-president in 1906.

Dr. Giles was brusque in speech and manner. However, up nearly to the time of his death, he continued to serve a large group of loyal patients in the textile and interlying communities. He had a remarkably keen insight into the personalities of his patients and excellent medical judgment. Many was the time that he put a younger and better trained doctor (the writer included) to shame by the correctness of his diagnosis and the good outcome of his treatment.

It was said of him after his death: "Forty-three years of hard work in one community, without thought of self, days and nights without adequate sleep and rest; hard self-sacrificing work, that all classes of humanity might live, always doing his best as he knew it; clean in his habits, honest in his dealings with his fellowmen, he was respected and loved by all."

Dr. Joseph B. Earle was, perhaps, the leading family doctor in Greenville at the turn of the century. He was the son of a Christian minister, and he retained the interest he had inherited, perhaps, in the work of the church. He was a gentle, skillful, kindly, Christian gentleman and doctor.

Dr. Earle came to Greenville from Gowansville in Spartanburg County in 1862. He graduated in medicine from the University of Virginia in 1886. He retired from practice in 1915 because of impaired health. However he lived until 1941.

After retirement, Dr. Earle spent the summers at Caesar's Head where he lived in the old Caesar's Head Hotel. He acted as house physician at the hotel and was always available for emergency medical service when needed in the summer colony. Many Greenville people in those days either owned summer cottages on the Head or spent some vacation time at the hotel. It was a great comfort to these people to have available this kindly gentleman and physician should sudden illness occur.

A friend who knew him well wrote of him: "A winsome smile and ever practical approach in the sick room gained the composure of the sick. Dr. Earle's peer in the sick room has not appeared for he was cautious and faithful in handling his patients."

Dr. Earle was a member of the Furman University board of trustees for many years. He was interested always in the civic affairs of the community and his counsel and cooperation were sought after. An obituary written at the time of his death closed with these words: "The community of Greenville, whose people Dr. Earle loved and who loved him, bow in respect to his useful life and hold dear his memory."

Dr. Lawrence L. Richardson was another Greenville doctor whose life extended from the days of the Civil War until the midpoint of the twentieth century. He was born in 1866, and he died in 1958.

He graduated from the Atlanta Medical College in 1894. He used to say that he was a country doctor until he moved to Simpsonville in 1909. At one time he served as president of the County Medical Society. For 15 years he was chairman of the board of school trustees of Simpsonville. He was mayor of his town at the time of his death and he had been so for 41 successive years.

Only a few days before his death, he attended the regular meeting of the County Society. Strangely enough, as if he had a premonition of approaching death, he bade his colleagues good-bye in a gracious little speech.

In the November, 1956 issue of *The Bulletin*, the following tribute was printed. It was reprinted after his death in the September, 1958 number. The tribute was prepared by Dr. Hugh Smith, and it tells of Dr. Richardson, the man.

"A Man's Contribution To His Community"

"When one has great respect and admiration for a man it seems fitting to acknowledge this fact. The medical profession can well be proud of this man's life and contributions to

his home community. Micah has said, 'you have been told, Oh man, what is good, and what the Lord requires of you; only to do justice, and to love kindness, and to walk humbly with your God!'

"On July 23, 1867, two years after the Civil War, the year the Suez Canal was opened, and that Lister published his 'Antiseptic Principle of Surgery,' a man was born in the lower part of Greenville County. His early life must have been difficult indeed when one recalls the economic history of that period. This man was the son of George W. and Louise Cox Richardson, native of that section, and he was one of several children born to that couple. He received his primary education in the local schools and went on to study medicine in the old Atlanta Medical College now a part of Emory University. He received the degree of Doctor of Medicine in 1894. He came back home and began active practice of medicine, which has now continued for more than 62 years. That he is active and beloved is fully appreciated by those of his colleagues who see him regularly at our County Medical Society meetings and from time to time in the halls of our local hospitals. Now in his 89th year his eyes have failed a bit, but not his vision. He is at work every day and many of his present patients are grandchildren of his earlier patients. He told me recently of delivering the daughter of a man he had ushered into the world some fifty years ago. In the sixty years of his practice he has delivered more than 6,400 babies and some of them within this last year. In the 62 years of his practice he has taken two vacations of two weeks each, one for his second honeymoon in 1913 and the other for a trip to Mexico some fourteen years ago. The only other time lost from his practice was due to surgery when his gall bladder was removed about seven years ago. He began in the horse and buggy days and for many years practiced on horseback. This was before the days of the telephone and electric lights. Even after he began driving automobiles, his love of good horses continued. He did not give up riding fine saddle horses until attacks of gall stone colic made it necessary when he was 80.

"In addition to a full and active practice of medicine he has found time to serve his community in many other ways. He enjoys the most remarkable confidence of his townsmen and has served as the Mayor of Simpsonville for forty consecutive years. This may well be a record of its own. He has also served as a member of the School Board for thirty years, many of them as chairman. He is a life long member of the Baptist Church and has served as superintendent of its Sunday School for twenty years.

"This man has indeed devoted his life to Simpsonville and its community. The practice of medicine has been both his love and his labor. He is the only living charter member of the Greenville County Medical Society and has continued to be actively associated with it. He was president of our society about 1910 and became an honorary member a few years ago. It has been my privilege to know this great physician for more than thirty years. Never has one heard of his doing or saying an unkind thing. His ideals are high and his life truly merits the great tribute of Robert Louis Stevenson to a physician.

"Lawrence L. Richardson, M. D., gentleman, Christian, civic leader, physician and friend. He has given a full measure of service to his fellow man. May there be others like him."

Dr. Curran B. Earle was one of Greenville's two pioneer surgeons for about fifty years. He with his father, Dr. T. T. Earle, and a cousin, Dr. Joseph B. Earle, operated the first surgical hospital in Greenvillle. The hospital had 18 beds, and it was very well equipped to handle all types of surgery done in those days. When the city hospital was opened, the Earles closed their hospital, donated the equipment to the new hospital, and transferrred their work there.

Dr. Earle was a charter fellow of the American College of Surgeons. He was a consistent and forceful proponent of the College pledge against the practice of fee splitting.

He served as a major in charge of surgery at the Army hospital at Camp Wadsworth in Spartanburg throughout World War 1. This hospital was said to have had the lowest mortality rate of the several army hospitals in the country.

Dr. Earle served as president of the Green-

ville County Medical Society, and later he was president of the state Association.

He was a Lord Chesterfield in his manner and was very gracious. He prided himself, and justly so, in aiding in every way he could the young physicians who located in or near Greenville. Many a doctor now in his middle years can look back with gratitude to Dr. Earle's assistance at a time when he needed it badly. There are those also who can recall his caustic words when he had been offended—and he was sensitive and easily offended. Punctuality was almost an obsession with him. He used to quote to those colleagues less meticulous that, "Punctuality is the courtesy of Kings."

Dr. Earle graduated from the University of Maryland in 1896. He attended many short courses in surgery and many surgical meetings throughout his career. Like others of his day, he was a self-made surgeon and one who, like wine, improved with age, as opportunities to apply the results of his keen observations and his experience came to him.

Dr. Earle was a Rotarian and a past president of his club. He participated in many civic and business activities of the community. He was truly a civic minded doctor, a leading citizen of Greenville and a leading doctor of his state for half a century.

Dr. James Wilkinson Jervey was one of the last in South Carolina of a distinctive group of early American physicians. The members of this group who were found in the older cities of the Atlantic Seaboard were proud and aristocratic gentlemen, they were cultured scholars, and they were physicians. Dr. Jervey was typical of the group. A colleague might be the object of his biting sarcasm expressed, however, in cultured phrases; he might be a defeated opponent in debate; or he might be one of a group listening to the stories he could tell so well, and yet the colleague could not help but feel admiration for and be a little envious of the doctor because of his poise, his rapier-like repartee, and his ready wit. So it was that even though he was the object of grudging admiration, he was genuinely disliked by many a colleague. However, he had a host of devoted friends.

Dr. Jervey was born in 1874 into an old Charleston family. His early education included attendance at the old Charleston High School, which was the prototype of the Latin Schools of New England. He graduated from the University of South Carolina. His medical degree, awarded in 1897, came from the Medical College of South Carolina.

He came to Greenville in 1898, and he limited his practice to ophthalmology and otolaryngology. He was Greenville's first eye, ear, nose and throat specialist. At various times, he studied in American and European clinics. He became a fellow of the American College of Surgeons and was a founding diplomate of the American Boards of Ophthalmology and of Otolaryngology.

Dr. Jervey was long a participant in the activities of organized medicine. Early in his career, and after the reorganization of the South Carolina Medical Association, he was appointed councilor of the newly formed Fourth Medical District. He was elected councilor the next year. He organized the Fourth District Medical Society in Greenville during his first year as councilor.

Dr. Jervey was president of the South Carolina Medical Association in 1912-1913. He was the second editor of *The Journal* of the South Carolina Medical Association, succeeding Dr. Robert Wilson who had launched the new venture with such affectionate care. He was president of the South Carolina Society of Ophthalmology and Otolaryngology in 1922-1923, and of the American Laryngological, Rhinological and Otological Society in 1933-1934. He served in the various offices of the Greenville County Society including its presidency. For many years before his death, he did not attend its meetings very regularly because, as he explained, he had become so hard of hearing. However, when after the death of Dr. Tyler, the second editor of *The Bulletin*, he was asked to assume the editorship, he very graciously consented to do so. His work as editor was one of love. As he so often said, he undertook to keep *The Bulletin* going because of the interest it would hold for the members away from home and in the armed forces. Under his editorship the character of *The Bulletin* changed considerably. It became less of a medical journal and more of a record-

ing of items of news interest to the absent members of the County Society. He relinguished the editorship after the end of the war and very shortly before his death.

Perhaps, the work in organized medicine which he enjoyed most and of which he was most proud was that in the Southern Medical Association. He served as chairman of his section, and he was councilor for many years. He was elected president in 1938, the year the Greenville County Society had begun a new progressive program. In the fall of that year, the County Society was asked by a number of Dr. Jervey's admirers throughout the state to arrange a banquet in his honor. This was done and in November, one hundred and eight doctors sat down with him to dinner. Seated at the head table were: Dr. James Des Portes, president of the State Association, Dr. Robert Wilson, dean of the Medical College, Dr. Willian Weston, of Columbia and a very active co-worker with Dr. Jervey in the Southern Medical Association, Dr. Jervey, Dr. Thomas Brockman, president of the Greenville Society, Dr. E. A. Hines, secretary of the State Association, Dr. Kenneth M. Lynch, the guest speaker for the scientific program which followed the testimonial dinner, Dr. W. S. Judy, the chairman of the committee on local arrangements, Dr. Will Fewell, and Dr. Mordecai Nachman, the secretary of the local society.

Drs. William Weston, Robert Wilson, Will Fewell, James Des Portes each eulogized Dr. Jervey in a warm and friendly manner. Dr. Jervey's speech, as he accepted a silver service which was presented to him by his friends to commemorate the event of his election to the presidency of the Southern Medical Association, was an attractive and feeling expression of appreciation of all that had been done and said in his honor.

The oratorical gem of the evening was the address made by Dr. Robert Wilson. It is worthy of reproduction. Dr. Wilson said:

"As our journey through life brings us toward the evening and the shadows lengthen and 'the long day wanes' it is pleasant to recall the friends who have traveled with us and shared the burden and the heat of the day. And so it is a pleasing privilege to be here tonight to speak well of one whose friendship I have long enjoyed and whom I have learned to admire for his attainments and to love for his personality.

"In my early immature days of teaching at the medical school in Charleston it was my fortune to have Wilkie Jervey among my students, and since that time through the years that have followed our friendship has grown to ripe and mellow fruitage.

"I shall not speak of the many honors he has won by his professional knowledge and skill—others are more familiar than I with the story of his work and with his accomplishments in the technique of his art. Rather will I speak of the man I have known—the man who possesses a rare gift of speech, the outgrowth of a refined and cultivated mind; a facility of expression clear and sharp, often with a cutting edge, but controlled by his inborn gentility of feeling; a native wit and clarity of thought which combine to make his conversation and his writings entertaining and illuminating.

"In these days when our professional standards show signs of weakening, when the rank growth of commercialism threatens to strangle the fine flower of our time-honored ethical ideals, men like Wilkie Jervey are greatly needed—men who think clearly, speak boldly and act courageously in upholding the best traditions of the ancient art of medical practice, guarding against the decadence of ideals which destroys from within, and the unwarranted assaults which are becoming increasingly more threatening from without.

"A man of personal charm, with a keen intellect and a refined literary culture, who has learned to appreciate all that is beautiful in nature and in art, who scorns subterfuge and loathes deceit, who comprehends the moral, ethical, and scientific foundations upon which the security of medicine must depend in order to achieve its dual mission of humane service and the extension of the field of knowledge.

"Such is he whom we are here this evening to honor."

Dr. Jervey resigned as editor of *The Bulletin* and announced his retirement from practice late in 1945. He planned to spend considerable time in travel. However, like so many doctors and other busy people, he retired from active work too late to enjoy retire-

ment. He died, after a short illness, in the fall of that year.

Dr. Ernest Willoughby Carpenter was born in Charleston in 1874. He died in Greenville in 1942. He received his M. D. degree from the Medical College of South Carolina in 1895, and he did general practice in Charleston before he specialized in ophthalmology and otolaryngology. He studied in American and European centers.

In 1905 he came to Greenville and began his specialty practice. He became a charter diplomate of the American Board of Ophthalmology in 1921. He was a fellow of the American College of Surgeons and of the American Academy of Ophthalmology and Otolaryngology.

He and Dr. J. W. Jervey were contemporaries. They both came from Charleston. They were both very ambitious and they each developed a fine following in the local profession. It was inevitable that there should be enmity between them, and it was inevitable that Dr. Jervey, with his more aristocratic background, his rapier-like tongue, his eloquence of speech, and his ready ridicule, should appear to his friends to have the better of any argument. However, Dr. Carpenter was not without resource, and he was not without sympathizers and admirers.

Dr. Carpenter had a very large practice throughout his professional life. Perhaps, what is more noteworthy, was his willingness to go out into out of way places to assist a colleague with a desperate case. His life span included the era of diphtheria epidemics, with their incidence of membranous croup. Only intubation or tracheotomy could save these children who so rapidly choked to death. It was Doctor Carpenter who was called night or day by so many village and rural doctors to come and help try to save these little ones—and he always went, promptly, willingly, and cheerfully.

He was an unassuming but a good citizen, a good doctor, and a loyal friend.

Dr. Robert C. Bruce was born in 1877 and died in 1944. He graduated from The Citadel in 1896, and he received his M. D. degree from Vanderbilt in 1910. After graduation he began his practice in Greenville.

He held all of the offices in the Greenville County Medical Society and became an honorary member of the society in 1936. He was the councilor for the Fourth Medical District for 10 years. He was elected president of the state Medical Association in 1936, after his nomination by his county society in a society caucus.

Dr. Bruce was a charter member of the staff of Greenville General Hospital and was a rotating chief of the medical service for many years. During World War I he served as chief medical examiner for the local draft board. He was chairman of the City Board of Health at the time of his death.

It was the writer's privilege to know Dr. Bruce well. To him, his chief characteristic was his unassuming gentleness and lack of guile. He was a sincere believer in the work of organized medicine, and he worked at it all of his professional life.

It was said of him after his death that, "Wherever he served, he became a 'trouble shooter!' He smoothed out many wrangles and unraveled many snarls, because he was so understanding, so sincere, so patient, and so wise."

Dr. T. R. W. Wilson was an import who added a very valuable cosmopolitan element to the medical community. He had been professor of pathology in the Baltimore Medical College, later the medical department of the University of Maryland, until 1908. In 1910 he visited Greenville and determined to move to the city. Before coming he took graduate work in radiology. He began his service in Greenville with the operation of an x-ray clinic and pathological laboratory. He operated this private institution only long enough to establish its worth to the community. Then he was induced to move the laboratory to the City Hospital. His work in Greenville was a constant stimulus to increased scientific medical practice. He was well read for his time. He was unassuming and non-irritating. His assistance was never offensive, and it was always generously given. It came to be requested frequently. In a very definite way, Dr. Wilson served as a one-man tissue committee on the hospital staff, and his influence tended to render more scientific medical practice in Greenville. He died in 1943.

This group of men were the greats of Greenville's medical fraternity for half a century. The element of their greatness varied from man to man. However, each of them made an outstanding contribution to his profession and to his community, and each one at sometime in his career was looked upon as a farsighted and dedicated leader.

MEDICAL COLLEGE CLINICS

THE MEDICAL COLLEGE OF SOUTH CAROLINA

ELECTROCARDIOGRAM OF THE MONTH

The Retained Juvenile Pattern

DALE GROOM, M. D.
Department of Medicine

Case Record—This is a routine preoperative electrocardiogram made on a 50 year old Negress who was admitted to the gynecology service for hysterectomy

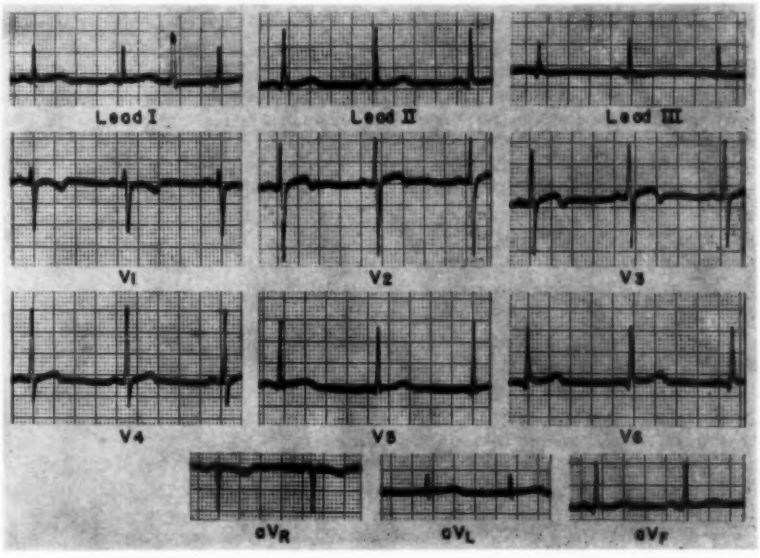
She had no history nor evidence of heart disease. Her cardiac shadow on chest roentgenograms was a little above average size but its contour was normal. There was a moderate hypochromic anemia.

Electrocardiogram—Except for T waves, this tracing is normal. They are somewhat low in amplitude throughout but are remarkably diphasic in V_2 and V_3. To the left of the transition zone (V_3) the T waves are entirely upright except for the last part of the wave in V_4 which is isoelectric. Elevation of the S-T segments in V_6 is minimal and of no significance.

The Q-T interval of 0.38 sec. is well within the normal range for the heart rate of 65.

Discussion—An unusual and probably normal anomaly of T waves is illustrated in this electrocardiogram of a presumably normal heart. Characteristically the T waves are inverted or diphasic in the right and midprecordial leads with lesser alterations reflected in other leads. The pecular diphasic deflection of the plus-minus type—first upright and then inverted—gives a distinctive appearance to the waves (though sometimes they are frankly inverted), and their localization to leads from the right side of the heart renders them all the more recognizable. The absence of any significant QRS or S-T abnormalities emphasizes the benign nature of what is generally interpreted as "the retained juvenile pattern" in the adult electrocardiogram.

Normally infants and children have a predominantly right ventricular type of electrocardiogram, ascribed to the dominant role of the right ventricle in the fetal circulation. Their tracings typically show a right axis deviation, high R waves in the right precordial leads,



and widespread inversion of T waves. This juvenile pattern ordinarily begins to wane at about age 3 or 4, giving way to the evolution of the normal adult electrocardiogram which is virtually complete by the time of adolescence. Apparently in some cases the evolution is retarded or actually arrested. Various gradations of T wave deformity of the childhood type are estimated to persist in 5 to 10% of normal Negro adults but in less than 1% of Caucasians. Whether these are truly vestiges of the juvenile pattern or not is controversial, but it should be emphasized that the similarity of these tracings to those of children is confined to the T waves and does not include the QRS changes of right ventricular preponderance of infants. Rarely, also, there may be minimal or moderate elevation of S-T segments[1] persisting in the left precordial leads, said to occur most frequently among Negro males, but this abnormality may or may not be associated with the T wave changes and its cause is obscure.

The possible role of vagotonia or some other functional disorder as a cause of so-called juvenile T waves is suggested by the fact that hyperventilation accentuates the inversion in some cases. Moreover it has been shown that administration of potassium or of Pro-banthine Bromide (propantheline bromide) causes the T waves to become normally upright[2] even though the serum potassium level is not appreciably altered. Such observations point up the high degree of variability of T waves produced by many extracardiac factors.

Recognition of these T wave changes as a normal variant is of importance in differentiating them from the abnormalities of coronary, myocardial or pericardial disease.

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Methods Used to Evaluate Vasodilator Drugs. J. Manly Stallworth, M. D., William H. Lee, Jr., M. D., and J. Vernon Jeffords, M. D. Angiology 9:366-377, Dec., 1958.

Sixty-two patients were studied in an effort to determine the effects of vasodilators on their specific arterial diseases. The patients were classified arbitrarily into groups having vasospasm, mechanical obstruction, and Buerger's disease as the predominant clinical feature.

All patients were examined in a constant temperature-humidity room under basal metabolic conditions. The following observations were recorded before, during, and after vasodilator drug (azapetine) infusions: microscopic observations of the conjunctival vessels (photographs made), digital plethysmographs, blood pressure, pulse, electrocardiograph, skin temperature of extremities, and oscillographs.

In general, the results indicated an excellent correlation between the digital arteries and the bulbar conjunctival arteries which, from a practical standpoint, indicate that observation of the reaction of the readily available conjunctival arteries to vasodilators offers a tangible and photographic means for evaluating these drugs.

There was a marked variation in individual response to the drug but, in general, the reaction was in direct ratio to the amount of vasospasm present no matter what the basic disease process may have been.

PRESIDENT'S PAGE

OBJECTIVES OF THE SOUTH CAROLINA MEDICAL ASSOCIATION

1. Improvement of the Health and well being of our Citizenry—It is good business to have good health as few cities, towns or communities enjoy one without the other. Consequently our public health measures are of the utmost importance, such as superior and ample water supply that has been properly treated so that it tastes good and not like some distasteful medicine. Proper sewerage disposal is a necessity, also good storm drainage. Pest and insect control is necessary, and the paving of streets and sidewalks are good health measures in my books, as well as proper street lighting with proper street crossings for pedestrians! We should be traffic conscious. Numerous trash containers and a minimum of noise are advised.
2. Immunizations of children and adults with known and proved vaccines. We have been giving diphtheria, pertussis and tetanus toxoids for many years which has proved successful in preventing these diseases. Now poliomyelitis is being added to the other three. Typhoid and paratyphoid vaccines have been injected for many years with great success, almost wiping out these diseases. Smallpox vaccination is the only one which is compulsory in our State to enter school. I trust it will remain this way, as I detest compulsion, but realize it must be done at times. Let's teach and educate our parents in the extreme importance of the preventive features in these diseases, and particularly at this time of poliomyelitis. A campaign, if you please, to strive to compensate and please all those individuals under 40 years to receive the polio vaccine so that this dread disease may in time also be wiped out. The only other vaccine which I would suggest the population taking at this time is the influenza vaccine; it is a good preventive.
3. Headquarters of the Executive Offices of the South Carolina Medical Association should be in the center of the state—population wise and geographically. The Legislature is in *per se* or through committees twelve months of the year, and a goodly part of our dealings is with this group; our contacts with the Governor, the Executive Branch, the Legislative group, the Judiciary, the State Board of Health are needed in the Capital City where they are situated, and it is surely where the South Carolina Medical Association Executive Offices should be located.
4. Proper care of the aged. Geriatrics is a field in medicine that we have helped create, so lets not shun our duties. Our Blue Cross and Blue Shield have presented a plan for this group. We must try to induce them to take advantage, else we are headed for Government Medicine in this respect, and once the wedge is driven there will be no escape. More of this subject in another article.
5. Revival of the Iodine and Research Program in South Carolina, on which an Editorial Page has already been published in the July issue of the Journal of the Association.
6. Continued support of the American Medical Education Foundation. You are contributing your funds for a most worthy cause . . . you are helping to educate future doctors through your donations. The medical colleges and schools need your assistance, so don't relax in this effort. South Carolina is proud of our contribution to our Medical College, and the Woman's Auxiliary has played an important role; it has been noble.

William Weston, Jr.

Editorials

FORAND BILL ONLY DORMANT

The U. S. Chamber of Commerce and two key Congressmen, all opponents of the so-called Forand bill, recently issued separate warnings that an all-out effort will be made to get the controversial legislation through Congress next year.

In its weekly report to members, the Chamber predicted there will be "a powerful attempt" in the next session of Congress to enact the bill (H.R. 4700) which would increase social security taxes to help pay for the cost of the Federal government providing surgical and hospital care for social security beneficiaries.

The Chamber warned that passage of the legislation would mark "a major break-through into the welfare state." It "probably would lead to a compulsory Federal program providing complete medical care for everyone," the Chamber said.

The Chamber called upon communities to find orderly solutions to the problems of the aging. Otherwise, solutions "will surely be imposed from Washington," the report added.

Similar warnings were voiced by Reps. Richard M. Simpson (R., Pa.) and Thomas B. Curtis (R., Mo.), key members of the House Ways and Means Committee where the bill was put on the shelf last session.

Rep. Curtis urged that the medical profession and other leading opponents make a strong counter-drive in an all-out effort to block passage of the bill next session. Unless there is such action, he said he would have to "regretfully" predict that legislation along the lines of the pending bill probably will be enacted in 1960.

Rep. Simpson said that H. R. 4700, and similar legislation affecting the medical profession, "make it imperative that every doctor keep informed on legislative issues before Congress." He also urged that physicians "become patriotic political forces" by giving "their informed viewpoint" to lawmakers at all levels of government.

Rep. Simpson said it "is important" that opponents of H. R. 4700 develop "appropriate alternatives" to solve the health care needs of the aged.

He promised to continue to cooperate with the medical profession to guard "against the disastrous consequences of compulsory national health insurance.

"House Democratic Leader John McCormack of Massachusetts expressed hope that Congress next year will stamp final approval on another bill of particular interest to physicians. He praised the Keogh-Simpson bill (H. R. 10) as "meritorious legislation" and said it "should be enacted into law next year." The measure, which was passed by the House last spring but left hanging in the Senate Finance Committee, would provide income tax deferrals for selfemployed persons setting aside money for private retirement plans.

THE NURSES TAKE A STAND

At its convention in 1958 the American Nurses Association took action in favor of promoting the Forand Bill. This year representatives of the Association testified in behalf of the Bill, not only urging its passage in its present form but also asking for an extension to cover private duty and public health nursing care, neither of which is in the Bill in its current form. The nurses thereby joined hands with the AFL-CIO in presenting a strong argument in favor of a bill which has seemed dangerous and unnecessary to the medical profession. The only outspoken opponent of the Bill among the medical groups was the American Dental Association. The American Hospital Association officially opposes but informally hedges considerably.

It appears that the nurses wavered for a while before making definite pronouncement of their stand. No doubt they take the compassionate and emotional view of the benefits to be obtained from such a bill, but they do not seem to absorb the implications which it carries for the regimentation and possible

destruction of the private practice of medicine.

The nursing profession has become more and more independent over recent years, and less and less like its old self. For this there may be very good reasons, but it is rather hard for the medical profession to see what it would suppose would be its staunchest ally go over to the enemy camp. It may be that the ladies with the lamps will serve as wreckers who will destroy the ship of medicine by kindling false beacons above the jagged rocks of the Forand proposal.

INFECTIONS

The changing patterns of infection and the decrease of importance of certain organisms, along with the increase in threat from others, have been the subject of much discussion. An article in *The New England Journal of Medicine*[*] gives a comparison of the role of infection in the production of fatalities in the period 1938-40 as compared with the period 1957-58. The records of two hundred deaths from each period were compared and certain distinct changes were noted to have occurred over the time which has elapsed. In the first period, infection played a part in the picture in 54% of cases, and in 28.5% infection was the chief factor in the fatalities. In the latter period only 29% showed evidence of infection as an important part of the picture in these fatal cases, and in only 14% was infection the chief demonstrable cause of death. Thus the importance of infection has been cut almost in half over a period of time when the newer remedies have been in general use.

The decrease in the importance of the pneumococcus, the streptococcus, and the tubercle baccillus has been most pronounced, and showed a tremendous drop from the figure of 40 in the first group to 4 in the latter group. They have lost greatly in their status as causes of death. Contrary to the thoughts of many people at this time, the staphlococcus has not increased particularly in its importance statistically as a killer. However, it has of course risen tremendously in the concern of hospital staffs because acquisition of staphlococcal infections seems to come so much more often from the hospital than from elsewhere. There has been also a marked increase in the fatalities from entero-bacterial organisms, chiefly Esch. coli but also pseudomonas aeruginosa and the mycotic infections.

Some light is thrown on the lack of efficacy of antibiotics in many of our problems by the finding that in the latter, practically current, period there were 15 patients who died in spite of receiving antibiotics, whereas in 1938-40 only 4 died while under treatment with antibiotics.

Another observation is to the effect that the prophylactic use of antibiotics has been very unsatisfactory.

[*]New England J. Med. 261:677

A PROTEST

by

N. R. Morris*

The modern M. D. and his anomalous yen
With pen in hand to beat arrhythmically
Some poor failing sequence of prose
Into a poem (vision of a latter-day Shelley)
Would do better to examine that stool,
Boil urine . . . . Sleep!
For remember:
O. W. Holmes
Wrote poems.

*Fourth-year student, Yale University School of Medicine

—Reprinted from *The New England Journal of Medicine*, Jan. 1, 1959.

"THE LADY DOTH PROTEST TOO MUCH, METHINKS"

by

Park Jerauld White, M. D.
St. Louis, Missouri

So say I to N. R. Morris of Yale University School of Medicine, who writes "A Protest" in the New Year's Day issue of the *Journal*. Whether N. R. Morris is a lady or not, let's say *he* writes as follows:

(Here is quoted the Morris poem)

Brek-ke-kek-kek-ko-ax to him!
I take my poetical axe to him!
Examine a stool? Boil wee-wee? Oui!
O. Holmes wrote polmes? Why, so do we!
Ha! Wendell Senior's our patron saint!
Down with you, Morris, and your complaint!
We hope your prosaic tribe decreases
Who'd trade us bards for a jar of feces.
New England's Journal is none the worse
For flavoring medicine with sweet verse.

—Reprinted from *The New England Journal of Medicine*, May 14, 1959.

BLUE CROSS . . . BLUE SHIELD

To the patient and his family an illness is a total experience, and the total cost is something which must somehow be met. Hospital costs have gone up 258 per cent since 1946, and there is reason to believe they will increase further. Charges for physicians' services have also increased and in some situations seem uncontrollable. To meet this problem voluntary insurance has emerged and has grown unbelievably since the early 30's. There are many unsolved problems, however, some of which will be directly under your control as physicians. One of these is hospital utilization. Physicians admit patients to hospitals, prescribe what services they shall receive, and determine how long they will stay. Hospital utilization, directly under the control of the physician, continues to climb upward each year. The effect on the health insurance plans such as Blue Cross which pay the bills from the subscribers' pooled premiums is catastrophic. Several plans have had to ask for large premium increases, and these requests have caused public concern and sharp criticisms in public hearings. Governmental or quasi-public studies or investigations are now under way in at least five states. State superintendents of insurance who have considerable authority are watching the situation closely, and in Pennsylvania a sweeping ruling has already been issued, having a direct bearing on the practice of medicine, a ruling based on a growing belief that health services are a public trust, subject to public review.

You, as future physicians, will have to share the responsibility for keeping the costs of medical care at as low a level as possible—but compatible with good medicine. For example, at present if the average length of stay of Blue Cross patients were reduced ½ day and if one in every 50 Blue Cross patients were kept out of the hospital through some other form of care, the saving in Blue Cross payments would be many million dollars a year in New York State alone. Since length of stay and admission rates are a function of the physician's decision, the opportunity to render a public service is inescapably obvious. Yet we must not be stampeded into arbitrary action. The foundation of good practice is a good diagnosis. If diagnostic procedures are not to be rendered to an in-patient, then they must be financed and provided on an ambulatory basis. If the patient is to have a shorter length of stay in the hospital, then home care at one-fifth or one-sixth of the cost is the alternative. Fortunately, during your next 4 years you will have an opportunity to examine two excellent affiliated teaching hospitals which have ambulatory diagnostic clinics and have given home care for many years—the Mary Imogene Bassett Hospital in Cooperstown and Montefiore Hospital in New York City.

Beyond exercising reasonable prudence with respect to hospital utilization for his patients, the physician's most direct effect on the cost of medical care is his own fee schedule. Will you overcharge your patients? Will you fail to observe the service benefit agreement you have entered into for your Blue Shield patients? Will you gradually raise your rates to take advantage of the lack of fixed-fee schedules under certain forms of commercial health insurance, thus contributing to the creeping inflation which is much more costly than the occasional excessive bill? Examples of these practices are common and have caused so much concern that certain consumer groups are establishing alternative systems of care through salaried group practice in community hospitals—the United Auto Workers being the most recent example.

And finally, there are those groups without insurance or other resources—the aged, the unemployed, the minority groups, the medically indigent. Further public action on behalf of such people is inevitable and requires intelligent and reasonable participation by the profession.

Medical care is a highly personal and privileged interchange between the patient and his physician. To belabor this point is to take up the time of this audience. When a single patient seeking care on his own is dissatisfied with an individual physician he can change physicians and there is no public reaction. However, when large groups of people are dissatisfied with their group system of medical care their reaction can, indeed, result in a large-scale decision on the part of their leaders. Among the many studies of medical care which have been done in the past few years is one which involved detailed interviews with patients comparing different systems of medical care under which they had received physician services. There were two outstanding aspects of the patients' assessment of good care: First, the interest of the physician in the patient, and, second, the adequacy of his care—usually measured in terms of thoroughness. People are neither insensitive nor ignorant, and when they react in large groups to their individual care their concern is translated into group decision to modify the way in which they receive care. Such changes are occurring yearly and are worthy of careful observation for the significant factors which bring them about.

The Public Concern—Roy E. Trussell, M. D.
Jour. Med. Educ. 34:539

NEWS

MEDICAL GROUP HONORS DR. HENNIES

A 50-year pin from the South Carolina Medical Association was presented to Dr. George A. Hennies recently when he was guest of honor at a dinner by the Chester County Medical Society.

The dinner was the occasion of his retirement from practice and from the position of county physician. Dr. John Brewer, Newberry, presented the pin.

Dr. Halsted Stone, president of the Chester society, presided and introduced special guests among 38 attending the dinner at Pundt's Restaurant.

After nearly half a century, Dr. Hennies is retiring from formal practice of medicine along with his duties as county physician.

He is a native of Columbia and a 1910 graduate of the Medical College of South Carolina. He came to Chester in 1911 and has been county physician since 1921.

The young Dr. Hennies chose Chester because of a friendship with James Land, who was studying pharmacy at the same time Dr. Hennies was studying medicine. Later Land and Dr. R. C. Love set up a drug store in Chester and they wanted a doctor to be associated with them.

DR. ELYAN SERVES ON WHITTEN VILLAGE STAFF

Dr. B. O. Whitten announces the addition of Dr. Michael Elyan to the medical staff of Whitten Village on August 3, to serve as clinical director and assistant to the superintendent.

Dr. Elyan was born in Dublin, Ireland. He received his literary and medical training there and moved immediately to London, where he worked in various hospitals in medical capacities. From there he went to Australia, serving in that country for several years before leaving to come to the United States. His studies have been mainly in the field of pediatrics and child welfare.

PIEDMONT ASSEMBLY

Dr. John T. Davis of Walhalla was elected president of the Piedmont Post-Graduate Clinical Assembly Thursday as the group ended its 24th annual meeting at Clemson House. He replaces Dr. Herbert Blake of Anderson.

Other officers are Dr. Sam H. Fisher, Greenville, executive vice president; Dr. James H. Sanders, Gaffney, vice president: Dr. A. Ellis Poliokoff, Abbeville, vice president; Dr. Ned Camp, Anderson, secretary-treasurer; and Dr. Hervey W. Mead, Pendleton, registrar.

ACADEMY OF G. P.

On October 3, Dr. William P. Hendrix of Spartanburg was installed as president of the South Carolina Chapter of the American Academy of General Practice, succeeding Dr. I. Ripon Wilson of Charleston.

Dr. Hendrix had served as president-elect the past year. Named to succeed him as president-elect was Dr. Martin Teague of Laurens. He will take office at the 1960 convention Sept. 29-30 at Spartanburg.

Other new officers installed at the closing session were Dr. Sam J. Garrison of Johnston, vice president; and Dr. Horace W. Whitworth of Greenville, secretary-treasurer.

New directors of the academy are Dr. Thaddeus Timmons of Lake City, District 6; Dr. Richard E. Hunton, Greenwood, District 3; Dr. William G. Whetsell, Orangeburg, District 8; and Dr. Harold F. Hope, Union, District 9.

Dr. Harold Jervey of Columbia was named to a two year term as delegate to the national society. Dr. George Price of Spartanburg was elected delegate for a one year term. Their alternates, respectively, are Dr. Richard Johnston of St. George and Dr. William Stuckey of Sumter.

A total of 157 physicians registered for the two-day meeting at Clemson House, largest attendance in the chapter's history.

Dr. S. L. Collins and Dr. W. R. Griffin moved to new offices on October 1, 1959 at 10th Avenue and Burroughs Street, Conway.

Announcement was made by the Pickens Medical Society that Dr. Robert G. Mann, of Pickens, is now associated with Dr. J. H. Jameson and Dr. J. A. White in the practice of general medicine at their Easley offices.

Dr. Mann has been associated with Dr. S. A. Garrett at the Garrett-Mann Clinic in Pickens for the past nine months.

Dr. Mann graduated from the Medical College of South Carolina in 1956. Following his graduation he interned at Greenville General Hospital. He has also completed a two year tour of duty in the U. S. Air Force Medical Corps where he holds the rank of captain.

Dr. Elizabeth B. Latham announces that her practice is being discontinued.

Dr. James E. Padgett, Jr. (now of Ft. Jackson, S. C.) will enter Pediatric Practice in Aiken, starting in July, 1960, and will be in possession of Dr. Latham's Medical History Records.

Dr. B. F. Emanuel announces the new location of his office at 117-119 Williams Street, Lancaster.

PUBLIC RELATIONS COMMITTEE NOTES:

There is always confusion in medical circles about the meaning of Public Relations. There is a tendency to confuse it with press agentry. The physician, internist or not, keeps hoping that someone will do his public relations for him. But the practice of medicine, particularly internal medicine, is basically a very personal relationship between physician and

patient. Component societies and the ASIM can help, but only to the extent that they can build upon the "public relations" of the individual internist in his office, in the hospital and in the community.

The ASIM Public Relations Committee believes that a successful public relations program for the internist must be based upon a "grass root" program at state and local levels and in the relationship between the internist and his patient and the internist and his friends in the community. It also entails coordination, communication and understanding among societies of internal medicine. In general, it has been found, that good medical public relations result when our efforts and our problems are expressed in terms of the patient's interests rather than in terms of the doctor's survival, convenience, or economic gain. Perhaps this fact should be the keystone of the public relations program for the internist.

Malcolm S. M. Watts, M. D., Chairman
American Society of Internal Medicine

Dr. John T. Davis of Walhalla, prominent Oconee county physician was elected president of the Piedmont Post Graduate Clinical Assembly as the group concluded its 24th annual meeting at the Clemson House. He succeeds Dr. Herbert Blake of Anderson in that position.

Other officers named to serve during the coming year include Dr. Sam H. Fisher of Greenville, executive vice president; Dr. James H. Sanders of Gaffney, vice president; Dr. A. Ellis Poliakoff of Abbeville, vice president; Dr. Ned Camp of Anderson, secretary-treasurer; and Dr. Harvey W. Mead of Pendleton, registrar.

DERMATOLOGISTS MEET

Dermatologists of the Carolinas convened at the Hotel Columbia September 19-20 for their semi-annual conference.

Scientific sessions included presentation of case histories by Drs. Leon S. Bryan, J. Richard Allison, Sr., J. Richard Allison, Jr., and A. M. Robinson, all of Columbia.

The doctors attended the University of South Carolina-Duke football game, and concluded their meeting September 20 with a banquet.

The dermatologists meet to develop and stimulate interest in dermatology in the Carolinas. There is no organized body of officers.

MEDICAL COLLEGE GRADUATE HEADS WORLD PROGRAM

Dr. Pearce Bailey of Washington, D. C., a 1941 graduate of the Medical College of South Carolina, has been appointed director of a new international neurological research program.

As head of the international programs of the National Institute of Neurological Diseases and Blindness, Dr. Bailey will encourage the worldwide exchange and coordination of scientific knowledge relating to neurologic and sensory disorders.

Dr. Bailey served his internship at Roper Hospital from 1941 to 1943. He has been director of the National Institute of Neurological Diseases and Blindness for eight years. He was a founder and secretary-general of the World Federation of Neurology. Before assuming the institute post, he was chief neurologist for the Veterans Administration's central office.

WAGENER ACCLAIMS SERVICE OF DOCTOR

An impressive community reception honoring Dr. J. H. Brodie for 43 years of service in the Wagener area was held in August at the Wagener Elementary school.

The event also served as a welcome for Dr. and Mrs. R. L. Worrell of Batesburg and Columbia who are coming to Wagener at the invitation of the community.

Around 300 people crowded the school auditorium as Dr. and Mrs. Brodie were presented with a silver tray on behalf of the town. The presentation was made by Mrs. Loneene Huggins, local school teacher, and Luke Cook, 92, the oldest member of the community.

Mrs. Huggins told of the untiring professional and civic service that Doctor Brodie had rendered to Wagener and said that "tonight it is a great honor for me to stand by a man who has stood by me in many crisis."

Mr. Cook presented Dr. and Mrs. Brodie with a silver tray with an engraving which expressed the love and devotion of the Wagener area people. Mrs. Huggins noted that she once asked Doctor Brodie how he managed to stand up under the strain and demands of his job and he told her, "I never get in a hurry or excited, I just take things as they come."

Doctor Brodie then responded to the community gesture by saying that "this is the greatest moment of my life." The crowd's applause for the beloved physician indicated they wanted the evening to be just that.

After Doctor Brodie was honored Dr. and Mrs. Worrell were called to the stage and Otis Baughman welcomed them to Wagener. Wagener Mayor John W. Tyler then presented Doctor Worrell with the key to the city and Doctor Worrell said that he felt called to Wagener and looked forward to working with Doctor Brodie.

Dr. Brodie was born in 1886 in the Tabernacle community. He received his early education at Salley and Edgefield schools and finished the Medical College of South Carolina in 1913.

He first practiced at Williston and later with Dr. W. A. Whitlock at Kitchings Mill before coming to Wagener in 1916.

Doctor Worrell was born in Columbia and named for the doctor who delivered him. He and his twin brother Edwin are the first twins to finish at the South Carolina Medical College. He finished at the University of South Carolina before going to the medical college where he graduated in 1958. He

interned at the Columbia Hospital of Richland county from July, 1958 to June, 1959.

Colquitt Sims, Jr., M. D. and Henry B. Hearn, III, M. D. take pleasure in announcing that Sam R. Moorhead, Jr., M. D. will be associated with them in practice limited to diseases of infants and children, Children's Clinic, 1411 North Fant Street, Anderson.

R. S. Higgins, M. D. announces the opening of his office for the General Practice of Medicine at 96½ Cannon Street, Charleston.

MULLINS HOSPITAL ADDITION APPROVED

The initial project construction application for an addition to the Mullins Hospital in Mullins has been approved by the Public Health Service.

This project will provide an additional 16 general hospital beds as well as new ancillary service areas, including a new operating suite.

An exhibition in honor of the late Dr. McIver Willcox of Darlington was held recently at the nearby Florence Museum. The exhibition was from the Willcox collection of Indian tools, weapons and other things.

The Willcox Indian collection exhibition, for which plans were begun prior to the death of Dr. Willcox, is now being presented by the museum as a memorial to the late Darlington physician.

A Greenville business man, David W. Hiott, and a Columbia, S. C. surgeon, Dr. Charles L. Sloan, were elected directors of Palmedico, Inc. of Columbia, pharmaceutical specialists, according to the president of the corporation, Erby A. Walker, Jr. It was also announced that Dr. Basil Manly, IV, of Greenville and Dr. Hugh Cathcart of Charleston have been added to the firm's medical advisory board.

Charles R. Propst, M. D. takes pleasure in announcing that William F. Young, M. D. will hereafter be associated with him in the practice of Pediatrics at 21 East Calhoun Street, Sumter.

A program designed to foster medical research at Roper Hospital in Charleston has been created by the Medical Society of South Carolina.

First step in the local research project was the establishment recently of the Roper Hospital Memorial Research Fund.

At the joint Post Graduate Convention of the North Carolina Eye, Ear, Nose, and Throat Society of Ophthalmology and Otolaryngology in Charleston, Sept. 13-16. The following officers were elected by the South Carolina Society:

President, Dr. Harry Ross, Anderson
Vice president, Dr. David Stack, Spartanburg
Sec.-Treas., Dr. Roderick Macdonald, Rock Hill

An extensive program covering three and a half days was presented, and included presentations by a number of well known authorities. Local speakers presented a symposium on "The Tonsil and Adenoid Controversy!" They were: Moderator: Dr. Richard W. Hanckel, Jr., Clinical Professor Otolaryngology, Medical College of South Carolina; Pediatricians: Dr. Joseph I. Waring and Dr. B. O. Ravenel, Charleston: Otolaryngolists: Dr. Walker Bates, Charleston and Dr. Frank Warder, Anderson.

"I brought her in so you can tell her about the er-r, birds and bees."

ANNOUNCEMENTS

TENTH COUNTY MEDICAL SOCIETIES
CIVIL DEFENSE CONFERENCE
SPONSORED BY
COUNCIL ON NATIONAL DEFENSE
AMERICAN MEDICAL ASSOCIATION
November 7-8, 1959
Chicago, Illinois

A conference on Mycobacterial and Mycotic Diseases With Special Reference To Childhood is to be held in New Orleans at L. S. U. Medical School on December 10, 11, 1959. This meeting is sponsored by the Tuberculosis Association of Greater New Orleans in cooperation with the Louisiana State University Medical School, the Tulane University School of Medicine, and the Orleans Parish Medical Society.

The Department of Ophthalmology of the Emory University School of Medicine announces a post-

graduate course in Applied Ophthalmic Pathology on December 3 and 4, 1959 at the Grady Memorial Hospital, Atlanta, Georgia. The guest lecturers will be Dr. Lorenz Zimmerman of the Armed Forces Institute of Pathology, Washington, D. C., Dr. T. E. Sanders of Washington University, St. Louis, Dr. J. A. C. Wadsworth of Columbia Presbyterian Medical Center, New York, and Dr. J. T. Godwin of Atlanta, Georgia.

The Mid-Atlantic meeting of the United States Section, International College of Surgeons, scheduled to be held at Hot Springs, Va., November 16-18, has been cancelled.

SOUTHERN MEDICAL ASSOCIATION

Don't fail to come to the Atlanta meeting of the Southern Medical Association November 16-19. An excellent program has been arranged and you will enjoy both scientific and social aspects of the meeting. Come and bring a friend.

Southern has grown to such proportions that it is probable this is the last time for the foreseeable future we will be able to meet in Atlanta. The local organization has been very active there and you are assured of a warm welcome and a good time.

Southern has an excellent membership in South Carolina. My Associate Councillors are John M. Fleming of Spartanburg, R. W. Hanckel of Charleston, D. Strother Pope of Columbia, Thomas F. Stanfield of Anderson, and J. Howard Stokes of Florence. We shall all be glad to render what assistance we can to you at any time.

J. W. Jervey, Jr., M. D., Councilor

NEW CLINICAL CENTER STUDY ON SJOGREN'S SYNDROME

The cooperation of physicians is requested in a comprehensive study of Sjogren's syndrome recently initiated at the Clinical Center, National Institutes of Health, Bethesda, Maryland. The cardinal manifestations are keratoconjunctivitis sicca, diminished or absent salivation and/or salivary gland enlargement and rheumatoid arthritis. The purpose of the study is to define the clinical, histological and immunological spectrum of the syndrome. For this reason patients are sought who manifest only dryness of the eyes and filamentary keratitis or xerostoma, as well as those who manifest the entire syndrome. Patients with scleroderma, systemic lupus erythematosus or periarteritis nodosa complicated by Sjogren's syndrome will also be admitted for study.

Physicians interested in the possibility of referring individual patients should write or telephone:

Dr. Joseph J. Bunim
Clinical Director
National Institute of Arthritis and Metabolic Diseases
Bethesda 14, Maryland
(OLiver 6-4000, Ext. 4181)

DOCTOR'S ORDERS

"To students at the Medical College of South Carolina, Dr. William Weston, Jr. of Columbia, president of the South Carolina Medical Association, gave this advice for their own personal health:

"Don't lose your temper; don't get discouraged; don't give up reading good literature and newspapers, and don't give up all relaxation and recreation."

As a layman *The News and Courier* would be presumptuous to evaluate medical counsel from one of South Carolina's leading physicians. As a daily commentator on common sense, we heartily endorse what Dr. Weston has said, especially the part about reading newspapers. What's that old saw about a newspaper a day . . . but who wants to keep away nice doctors when they give such good advice?"

News and Courier

DEATHS

DR. CHARLES OSCAR BATES

Dr. Charles Oscar Bates, 73, prominent physician and surgeon of Greenville for many years, died at a local hospital following several years of declining health.

Dr. Bates was born at Clifton, S. C., on August 3, 1886. He attended the University of Georgia, where he received his M. D. degree on May 1, 1909.

Since that time he has studied in clinics in Philadelphia, New York and prominent cities of Europe.

For 15 years he did general practice as a physician, later specializing and becoming a surgeon. He came to Greenville in August, 1909, and became assistant to Dr. Curran B. Earle. In 1923, Dr. Earle and Dr. Bates formed a partnership.

Throughout all his career as a physician and surgeon, Dr. Bates had practiced with great skill and success and was recognized as a leader in his profession. He followed in the foot-steps of his father who was also a physician and surgeon.

When the Shriners began their work for crippled children in the United States and before the Shriners Hospital was established in Greenville, Dr. Bates agreed to do the surgical work without charge.

This was done for several years as a clinic was conducted at Parker High School. The Hejaz Temple of the Shrine presented Dr. Bates with an inscribed pitcher in 1927, for his contribution to their work.

He was a Fellow in The American College of Surgeons, a member of the Greenville County Medical Society and the International Congress of Surgeons. He was a member and past president of the Southern Railway Surgeons Association and was surgeon for C&WC Railway at the time of his death.

He was a member of the Greenville City Board of Health for many years and was serving as chairman. He had served as president of both the General Hospital and the St. Francis Hospital staffs.

He was a Rotarian and had served as a director. He was serving on the Board of Directors of Peoples

National Bank. He was a past president of the Greenville Community Chest.

MAJ. F. W. CHANDLER

Major Frank W. Chandler, Air Force doctor was killed in a helicopter crash in Greenland.

Dr. Chandler was a Sumter native. He had been stationed at Thule Air Force Base, Greenland, since January.

DR. J. A. THOMASON

Dr. J. A. Thomason, 72, retired Fountain Inn doctor died September 25 at a Greenville hospital.

IS MEDICINE MISSING THE TRAIN WHERE YOUTH IS CONCERNED?

A program to attract talented high school and college students to the study of medicine was introduced by the American Medical Association and the Association of American Medical Colleges recently at the AMA's 1959 Public Relations Institute in Chicago.

Discussing the need for more medical students—and how to get them—were Walter Wiggins, M. D., secretary of the AMA Council on Medical Education and Hospitals; Gary L. Mills, Ph.D., director of guidance and special services at Glenbrook High School in Northbrook, Ill.; John A. D. Cooper, M. D., associate dean of Northwestern University Medical School in Chicago, and Debs Myers, director of program development for the AMA.

Dr. Mills replied that because medical school was many years ahead of the high school student, an aspiring medical student should concentrate on getting a broad, liberal education in his pre-medical school studies. He also pointed out that the medical schools and the medical profession could do a service to high school faculty advisers and vocational guidance counsellors by making known the fact that vacancies do and will exist in U. S. medical schools. He added that medical careers informational media would help the high school counsellors by making the opportunities and rewards of medicine better known to their students.

Dr. Cooper emphasized that well-prepared and qualified students will be accepted into medical school, but he advised learning the admissions requirements of specific schools so that the college student will follow the prescribed basic curriculum. He outlined the needs for more students in the future because of the variety of careers being developed through medical progress — in research, teaching, practice, and administration.

Because of the increased competition from other professions for the talented students, programs were being developed by AMA and AAMC to stimulate these students toward medicine.

Mr. Myers then outlined medicine's program and enumerated the services now available to state and county medical societies and medical schools to highlight the opportunities in medicine. These include all new materials: (1) a 25-minute 16 mm color and sound motion picture entitled "I Am A Doctor", which was premiered at the Institute; a comprehensive handbook on "Medicine as A Career" for distribution to high school and college advisers containing a summary of high school, college, and medical school information to be used in counselling work; a brief pamphlet for wide-scale distribution to students, and a major exhibit on "Medicine—the Most Demanding Rewarding Profession" for showing at "career days", health fairs, and large community gatherings. These printed materials, he said, will be sent to medical societies and medical schools within a few weeks, and the film and exhibit may be requested from the AMA now.

LEGISLATION TO "DERAIL" THE AMERICAN SYSTEM

Just how many persons over 65 lack adequate medical care and would be helped by the passage of Forand-type legislation?

This question is the crux of the whole Forand bill problem, according to a panel of American Medical Association experts on legislation.

In a "Meet the Press" session at the recent PR Institute in Chicago, Aubrey Gates, director of field services for the A.M.A., said the problem of the health care of the aged must be circumscribed. It must be learned just how big the problem is and if it exists at all.

C. Joseph Stetler, director of the A.M.A. Law Division, pointed out that a survey must be conducted to find but just how many persons are not now receiving adequate care. It is presently estimated that about only 2 million persons would benefit from Forand-type legislation—yet many millions would be penalized by this type of government program.

Stetler suggested that the federal government might conduct a survey among selected communities in an attempt to learn the extent of the problem.

Dr. George Twente, Jackson, Miss., a member of the Council on Legislative Activities, felt there is no great problem. "We have been taking care of the aged for years and will continue to do so," he said. He also noted that many persons do not seek medical care because of superstition. "Can we legislate against superstition?" he asked.

Gates noted that between 60 and 65 per cent of those over 65 now have health insurance. The remainder either want no insurance or are already on public assistance.

Another major point made by the panel was that physicians need to be spurred to greater political activity. Stetler pointed out that 97 to 99 per cent of physicians agree with the A.M.A. opposition to Forand legislation; however, they express no active interest in the situation.

State and county societies, as well as the A.M.A., must encourage physicians to be more actively interested in political matters. The Forand bill, and similar health legislation, have grown out of medical advances which have made people live longer; thus

medicine itself helped create a political problem, Stetler said.

Other points made during the session were:

—To date no substantial extra amount of money has been spent by the A.M.A. in its opposition to the Forand bill. The campaign has been carried on within the regular budgets of the A.M.A. departments concerned with the problem (mainly the Council on Legislative Activities).

—The A.M.A. Washington office acts as an "arm" of the headquarters in Chicago. The two offices are in weekly telephone contact, with the Washington office carrying out the directions at the Chicago headquarters.

Excerpts from the Constitution of SOUTH CAROLINA ASSOCIATION FOR RETARDED CHILDREN, INC.

The name of this Association shall be S. C. Association for Retarded Children. The Association shall be chartered as an eleomosynary organization under the laws of the State of South Carolina.

The principal office of the Association shall be at such place as the Board of Directors shall determine.

This Association is a non-profit, non-sectarian and non-political organization which shall take no position in matters other than those concerning mental retardation.

The principal objects and purposes for which this Association was formed are as follows:

1. To promote the general welfare of mentally retarded children of all ages everywhere; at home, in the communities, in institutions, and in public, private and religious schools;
2. To further the advancement of all ameliorative and preventive study, research and therapy in the field of mental retardation;
3. To develop a better understanding of the problem of mental retardation by the public and to cooperate with all public, private, and religious agencies, international, federal, state, and local, and departments of health, education, welfare and institutions;
4. To further the training and education of personnel for work in the field of mental retardation;
5. To encourage the formation of parents' groups, to advise and aid parents in the solution of their problems, and to coordinate the efforts and activities of these groups.
6. To further the implementation of legislation in behalf of the mentally retarded;
7. To serve as a clearinghouse for gathering and disseminating information regarding the mentally retarded, and to foster the development of programs in their behalf; and
8. To solicit and receive funds for the accomplishment of the above purposes.

Membership in this Association shall be open to all persons interested in the welfare of mentally retarded children either by affiliating with a chartered local chapter as an Active Member or by direct affiliation with SCARC, as a Member-at-Large.

SOUTH CAROLINA ASSOCIATION FOR RETARDED CHILDREN OFFICERS—1959-60

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1st. V. P.—Mrs. Charles Graham, Box 36, Clio, S. C. (Marlboro Chapter)

2nd. V.P.—C. A. Traynham, 1115 Brannon Street, Greenwood, S. C.

Secretary—Mrs. Marguerite Heath, 17 Ackley Road, Greenville, S. C.

Asst. Secretary—Mrs. Brantz Mayer, Oakdale Court, Bennettsville, S. C. (Marlboro)

Treasurer—Leon Fuller, 3601 Wheat Street, Columbia, S. C.

Immediate Past President—Brantz Mayer, Oakdale Court, Bennettsville, S. C.

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Charleston Chapter—Mr. E. L. Jagar, 203 Peoples Building, Charleston, S. C.

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Greenwood Chapter—Mr. John R. Corley, 304 Lindsey Street, Greenwood, S. C.

Edisto Chapter*—Mr. Dan Evans, Santee, S. C.

Lancaster Chapter—Mr. J. R. Overcash, P. O. Box 503, Lancaster, S. C.

*Orangeburg, Bamberg, and Calhoun Counties

UNION ACQUIRES NEW PHYSICIAN

Union has a new doctor in Dr. Maynard W. Bland, a Gaffney native, who has begun general practice.

He attended Wofford College and graduated from Furman University. He interned at Greenville General Hospital after receiving his medical training at the Medical College of South Carolina.

DEAFNESS CAUSED BY ANTIBIOTICS

The fact that injections of dihydrostreptomycin can cause irreversible deafness has been known for many years, and has been the subject of a number of cautionary reports (see "Current Concepts of Therapy"—*N. E. J. Med.*, 259: 85, 538: 1958). The drug continues to be widely used, nevertheless, largely in the belief that hearing damage results only from large or prolonged dosage.

A report on "Dihydrostreptomycin Deafness" by Dr. George E. Shambaugh, Jr. and seven other otolaryngologists, which is soon to be published, questions whether the drug can be safely used in any dosage. Dr. Shambaugh is Professor of Otolaryngology at the Northwestern University School of Medicine.

Over a four-year period, Dr. Shambaugh and his colleagues observed 22 cases of irreversible loss of hearing directly attributable to dihydrostreptomycin and additional cases probably caused by the drug. In some of the cases deafness resulted from injections given "not for severe infections as life-saving measures but prophylactically in uninfected surgery cases or for mild, common infections . . . ." In nine of the cases reported, the total dosage of the drug was between one and five grams.

It has been known for some time that the loss of hearing with dihydrostreptomycin is often progressive after use of the drug is stopped. Furthermore, there can be a latent period of several weeks to as long as six months between the administration of the drug and the onset of hearing loss. Because of this latent period, the report says, "The prescribing physician usually had not the remotest idea of the eventual disastrous results."

INCIDENCE OF HEARING LOSS—The authors refer to the paper by A. Glorig (*Annals of Otology, Rhinology and Laryngology*, 60:327, 1951) which reported loss of hearing in about a third of a group of tuberculosis patients who had received dihydrostreptomycin in doses of two to seven grams weekly for several weeks. Dr. Shambaugh and his colleagues recommend that ". . . this antibiotic should be omitted from commercial combinations of antibiotics or, if included, its presence should be clearly indicated in the name. Since streptomycin is as effective as dihydrostreptomycin for gram-negative and acid fast (bacillary) infections and since toxic reactions occur immediately, are more easily recognized, and less permanently disabling, there seems to be little reason to utilize the more dangerous drug." (Streptomycin can cause irreversible vestibular damage, affecting balance, but patients can learn to compensate for this impairment.) If dihydrostreptomycin is absolutely essential, as for treatment of seriously ill tuberculosis patients who are sensitive to streptomycin, as small a dose for as short a period as possible should be used.

The report lists the following mixtures of dihydrostreptomycin with other antibiotics among the agents responsible for deafness in the series observed. Dicrysticin (Squibb), Dihydrocillin (Upjohn), S-R-D (Parke-Davis), Distrycillin (Squibb), Bicillimycin (Wyeth), Cillimycin (Wyeth), Combiotic (Pfizer), Durycin (Lilly), Crysdimycin (Squibb), and Strocillin (Abbott).

KANAMYCIN AND NEOMYCIN DEAFNESS—Dihydrostreptomycin is not, of course, the only antibiotic that can affect hearing. *The Medical Letter* cautioned in its "pre-publication" issue, that irreversible loss of hearing may follow the parenteral use of kanamycin (Kantrex-Bristol), and that this drug should be used parenterally only for severe staphylococcus or other infections, and only after safer antibiotics had proved ineffective. In view of the current promotion of Kantrex as "the logical 'first-choice' antibiotic," the following statement by Dr. Shambaugh and his colleagues is significant: "Because of its known ototoxicity, neomycin is now restricted to non-parenteral use except as a life-saving measure. ***Kanamycin may soon be relegated to a similar category***" (our emphasis).

The Medical Letter

BOOK REVIEWS

MOLOY'S EVALUATION OF THE PELVIS IN OBSTETRICS. By Charles M. Steer, M. D., 2nd ed. Philadelphia: W. B. Saunders Co., 1959, Price $4.00.

This little volume of 123 pages reports further on studies of the architectural differences in the pelvis and their effects on labor which were begun 33 years ago by Dr. Howard Moloy and Dr. William Caldwell. These later studies were begun by Dr. Moloy and were completed after his death by Dr. Steer. The author states in the preface that these studies allow "a complete presentation of our knowledge of the pelvis in obstetrics."

The various types of pelves are classified. Methods of recognizing them are discussed. The outcome of labor in varying degrees of disproportion is detailed.

The book is not intended to replace standard text books of obstetrics. Instead, if the operator is already familiar with the various methods of delivery, a thorough knowledge and understanding of the pelvic types and methods of recognizing them, as they are described, will make it possible for him to select the appropriate method of delivery.

The book is in five sections. The first deals with the general morphology of the pelvis and includes a classification. Section two describes the technique of clinical examination of the pelvis. Section three discusses and describes the mechanism of labor. The fourth section discusses the significance of pelvic shape in the treatment of various types of arrested descent of the presenting part. The last section is a detailed discussion of the steps to be taken in recognizing the presence of cephalopelvic disproportion. These steps involve clinical examination and classification, observation late in pregnancy of the size of the child and probability of engagement, re-examination at onset of labor, trial of labor and estimation of disproportion by x-ray pelvimetry.

Although the book would probably not interest the general man too much, the specialist and especially one who has an active consultation practice will find it interesting and helpful.

The line drawings and illustrations are excellent, the references are adequate, and the index is comprehensive.

J. D. G.

ELEMENTARY STATISTICS WITH APPLICATIONS IN MEDICINE AND THE BIOLOGICAL SCIENCES. By Frederich E. Croxton, Paper bound $1.95, PP 376 with numerous mathematical tables and illustrations (Dover Publications, Inc., New York, 1959. Price $1.95.

This is a corrected republication of the work first published under the title "Elementary Statistics with application in Medicine" in 1953. The material is presented in a readable manner and only a modest knowledge of mathematics is necessary to understand and to use the text material. Twelve chapters and fourteen tables in the appendix present the statistical approach very adequately beginning with definitions and an explanation of distribution and working up through methods used for determination of the significance of groups of data by the Chi Square Test and other tests for variances. Actual data collected in specific observations are used throughout the text.

W. McCord

INDUSTRIAL CARCINOGENS, by Robert E. Eckardt. Grune and Stratton, New York. 1959. Pp. 164.

This small volume on industrial carcinogens is intended for the beginner. The author makes no claim to being a cancer specialist, either in the experimental or clinical field. Dr. Eckardt's years of experience, however, in the capacity of a clinician supervising the industrial hygiene and toxicology research in the petroleum industry have fitted him for his task of making a broad review of the present status of carcinogens in industry, and their relation to occupational cancer. The well selected references at the end of each of the six chapters will give the reader an appreciation of the extensive field of industrial carcinogens.

John R. Sampey

VASCULAR SURGERY, by Geza deTakas. W. B. Saunders Company. Phila. 1959. Price $17.50.

This text is designed to correlate the increasing knowledge of basic vessel physiology and pathology to modern methods of treatment. This is accomplished in a well-documented and practical manner. The entire book will not be of interest to all readers, but because of the properly outlined material, it can be used as an adequate reference guide for practitioners in all phases of medicine. Certainly, all physicians who treat vascular disease, should have this book available to their practice.

The book is divided into four parts. The diagram and illustrations are adequate supplements to the written data. Part I describes the "Fundamental Principles affecting Vascular Surgery" in a readable and interesting way. In Part II both clinical and laboratory "Methods of Diagnosis" are clearly defined. Part III deals with "Vascular Syndromes Requiring Surgical Care". Here, artery, lymphatic, and venous disorders are categorized for detailed or quick references. Part IV describes "Surgical Technique" according to modern day standards. Arterial grafts, venous resections, lymphatic operations, are a few of the subjects covered by anatomical drawings, photographs and explicit descriptions.

J. Manly Stallworth, M. D.

PREVENTIVE MEDICINE. H. E. Hilleboe and G. W. Larimore. W. B. Saunders Co. Phila. 1959. Price $12.00.

This newest compendium on the arts and sciences of keeping people well is about as comprehensive as any similar work seen to-date. It contains chapters by over thirty well known specialists in Public Health fields, and each of them an authority

It covers the ancient and well worn problems such as Venereal Disease and Insect Vectors and goes all the way into tomorrow with consideration of Air Pollution and Ionizing Radiation; nor does it stop with technical information, but adds discussions of techniques, follow-up, and education.

Dr. Hilleboe, writing the preface to the book, emphasizes "the new way to look at preventive medicine for medical students, general practitioners, specialists and professional workers in official and voluntary health agencies." Simply stated, the theme of the book is what the authors term "secondary prevention". Primary prevention—always our first goal—is fairly easily obtained with present knowledge and methods, but secondary prevention—the prevention of progression of disease—is more difficult, more costly, and less likely to be successful, because damage to the human body is already present.

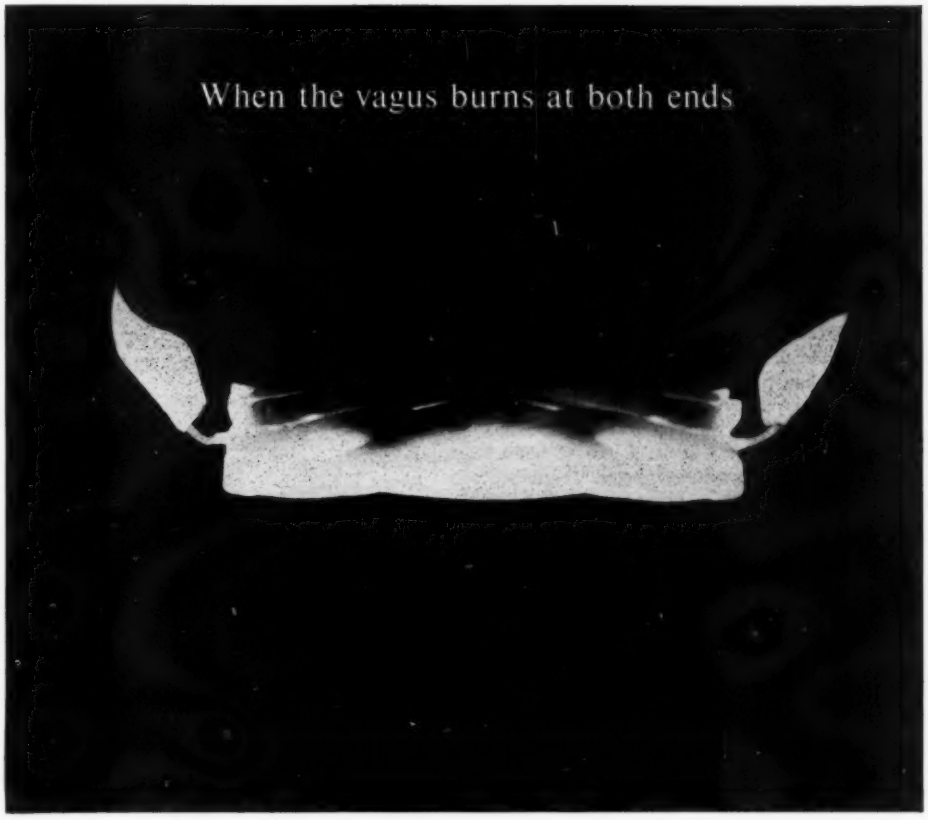
In my opinion this is a wonderful resource book—one to keep on the library shelves until time to look up some specific problem—but not one that makes for easy reading in the long winter evenings.

Its very arrangement enhances its value for reference, but at the same time reminds me of the girl who was given "a book" as a gift; it was a dictionary, but she felt dutybound to read it. Her comment was, "Well, it's a good book, but it surely does change the subject often."

John M. Preston, M. D.

DISEASES OF METABOLISM, Edited by Garfield, G. Duncan, with 22 contributing authors, Fourth Edition, W. B. Saunders Co., Philadelphia, 1959. Price $18.50.

The Fourth Edition of DISEASES OF METABOLISM is again one of the best textbooks of medicine. As compared to the Third Edition, numerous changes are evident. New authors have rewritten many of the



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Research in the Service of Medicine.

sections of the book, and in addition to the rewriting of most of the chapters, the most recent concepts in regards to basic physiological and biochemical mechanisms have been introduced with correlation with the clinical aspects and therapy of various disorders. There are abundant charts, tables, diagrams, and illustrations to aid in the elucidation of physiological phenomena and their clinical applicability.

The Fourth Edition of this text is again heartily endorsed as one which will be of considerable value to the medical student, the internist, and the general practitioner.

Vince Moseley, M. D.

TRAUMA. Harrison L. McLaughlin, M. D. W. B. Saunders Co., Philadelphia, 1959. Price $18.00.

Dr. McLaughlin, assisted by nineteen contributors has compiled a very complete book on the broad subject of Trauma. It is very difficult to cover so much without the work appearing to be a compendium. I found it very full in explanation though condensed. Copious and excellent illustrations permit this and add much to clarity.

The first part of the book deals with principles in the treatment of trauma. The treatment of fractures is simplified and the author draws on his vast experience to give what he considers the best treatment in a variety of fractures rather than several types of treatment which might confuse.

The work should be particularly useful to the medical student and house officer.

John A. Siegling, M. D.

CLINICAL OBSTETRICS AND GYNECOLOGY. Publisher, Paul B. Hoeber, Inc., New York 1958. Per Annum $18.00.

Clinical Obstetrics and Gynecology is a quarterly publication. Each issue consists of two symposia, one in obstetrics and one in gynecology. Each symposium deals with a single subject, the many facets of which are discussed by authors well recognised in their particular fields. Thus one can rapidly ascertain the well-rounded, current opinion on important topics This quarterly does not duplicate either the Year Book of Obstetrics and Gynecology, or The Obstetric and Gynecologic Survey. Its articles are not extracts or reviews of previous articles, but unabridged articles currently written for publication in that particular quarter. The series would be especially helpful to candidates for American Board examinations, as well as to teachers and clinicians.

J. Richard Sosnowski, M. D.

TEXTBOOK OF PEDIATRICS—Edited by Waldo D. Nelson with the collaboration of eighty-one contributors. Seventh Edition. 1462 pages. W. B. Saunders Company, Philadelphia, 1959. Price $16.50.

Nelson's *Pediatrics* has been for many years a popular standard text which has provided the best for student and practitioner. While the new edition is a trifle shorter than the one preceding it, it still covers the essentials of pediatrics in an excellent manner. The book is authentic, readable and useful for any physician. A number of new collaborators have been added to the long list and most of the older writers are still to be found in this work.

In the minds of many pediatricians, this book represents the best available text and reference source.

JIW

SOUTH CAROLINA MEDICAL ASSOCIATION BUDGET FOR 1960

ADOPTED BY COUNCIL OCT. 7, 1959

Secretary	
Office Help	$ 900.00
Office Expense	600.00
Travel	500.00
Treasurer's Expense	100.00
Journal	
Office Expense	1,500.00
Editor's Salary & P. R.	3,000.00
Adv. Mgr.'s Salary	1,200.00
Printing	25,000.00
Executive Secretary	
Salary	10,000.00
Office Help	7,500.00
Travel	1,500.00
Rent	1,200.00
News Letter	800.00
Office Supplies	1,500.00
Tel. & Tel.	1,500.00
Utilities	100.00
Conf. & P. R.	750.00
Insurance	600.00
Postage	1,000.00
Delegates to A.M.A.	
Travel	1,800.00
President's Expense	1,200.00
General	
Woman's Auxiliary	750.00
President's Gift	200.00
Historical Committee	500.00
Infant & Child Health	200.00
Maternal Welfare	200.00
Contingent Fund	1,500.00
Civil Defense	500.00
Auxiliary Bulletin	1,000.00
Medico-Legal	2,000.00
Publicity	300.00
Annual Meeting	------
P. R. Committee	2,300.00
A.M.A. Meeting (Joint Host)	500.00
Committees—Expenses	500.00
Total	$72,700.00